Gleanings in Bee Culture

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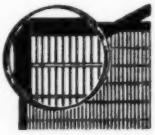

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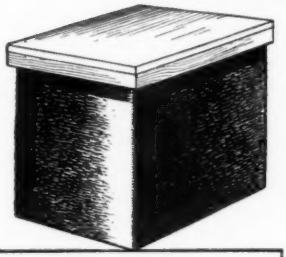

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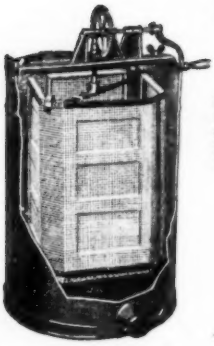

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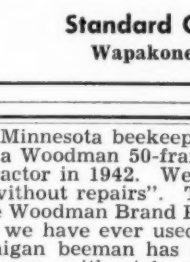
Bee Lines to The Editor



"If we must have honey 'supports', whence comes the 'support'? Aside from its primary provisions, every such law or directive entails tremendous incidental expense for printing, accounting, administration, and prosecution of violaters. Does the government dig the money out of the ground, or does it gather it out of the tree-tops?

"From my past experience as a small-scale beekeeper my attitude apiculturally is a sympathetic one; but let us not view the matter superficially or jump at conclusions.

"If the object sought were solely to secure for the honey producer a fair and equitable price for his product in line with existing economic conditions, with no disadvantage to anyone else, no additional taxation, direct or indirect, and no change in general price levels, I should favor it. But you know, as

(Continued on page 441)

Monthly Honey Report

June 18, 1952

The following figures represent an expression of current prices from beekeepers and honey packers over the country. They are based on several reports from each state averaged with the reports in the region. Where insufficient information is returned, prices have been omitted from the chart. Where three figures appear on the chart the first figure represents the low, the middle figure represents the average, and the third figure the high price in cents per pound. Where only two figures are used the low and high are shown.

	North Atlantic	South	North Central	Mid-west	Pacific
Bulk Honey:					
Table Grade	12-14		11-12-13	11½-12¼-12½	11-12-12
Industrial Grade			8-9½-11	10-10¾-11½	9-9¼-10
Price to Grocers:					
5 lb. jar - can	16-20-26	18-21-24	15-18-24	16-17-18	16-18½-20
3 lb. jar - 12's		22-23-29			
2 lb. jar - 12's		20-25-32		20-21-22	22-25
1 lb. jar - 24's		23-25-30	23-26-27	21-24-25	23-25
Comb Honey:					
Cs. of 24 Sec.		$6-7.20-8.40		$7.20-9	
Retail Price:					
60 lb. can		15-21-30	15-16-17	15-15½-16½	14-16½-20
5 lb. jar	20-27-35	23-29-45	22-25-30	19-20-24	20-22-25
3 lb. jar	32-34-37	26-29-33	25-27-29		
2 lb. jar	30-38	25-32-43	28-32	23-26-30	25-28-30
1 lb. jar	29-36-40	32-34-40	28-33-35	25-29-33	29-32½-34
Honey Sales:	Fair	Fair	Fair	Fair to Slow	Slow to Fair
Estimated Crop:					
Conditions based on normal %	107	88	90	95	98
Beeswax		40-50	40-53	40-43-52	

A few comment were as follows:

Prices of bulk honey have shown a stronger trend and are generally slightly above Government support prices. (See page 329 June Gleanings for details of the Price Support). Prices of bottled honey reported were sketchy and remained about the same.

Arkansas - "Good crop from early flows."

Visconsin - "No established price at the moment as beekeepers are waiting to see what the government floor will do to both wholesale and retail prices."

Michigan - "Many colonies near starvation. Scale hive losing. Fields of white, alsike, and yellow sweet in bloom, but no yield."

Oklahoma - New crop just being harvested. No prices."

Nebraska - "Very little clover left."

Arizona - "Main crop (mesquite) cut short by unseasonal, but very beneficial rain—(one third short) i.e. two thirds of expected crop brought in. Sales good, demand for comb honey and cur comb increasing."

Oregon - "Honey flow has been good, but is being cut short by hot drying winds."

The general commodity price as reported in the Journal of Commerce for some 30 commodities stands at 291.7 as compared with 295.8 a month ago. 1938 is figured at 100.

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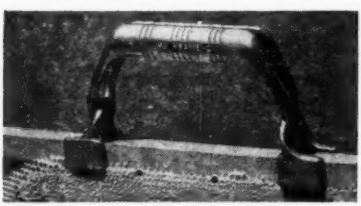

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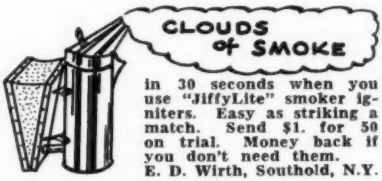

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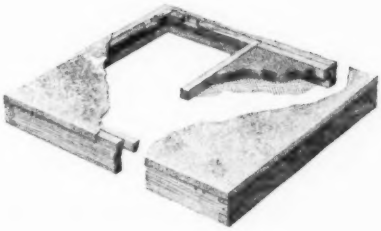

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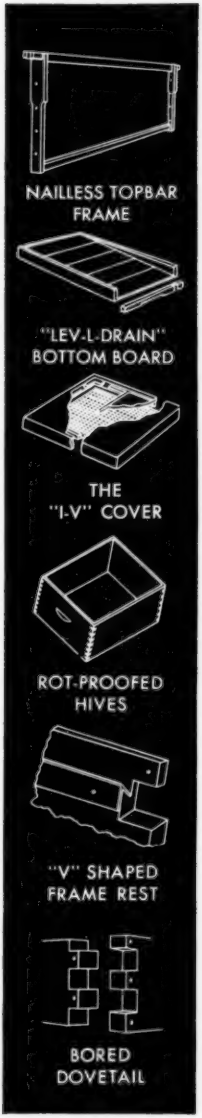

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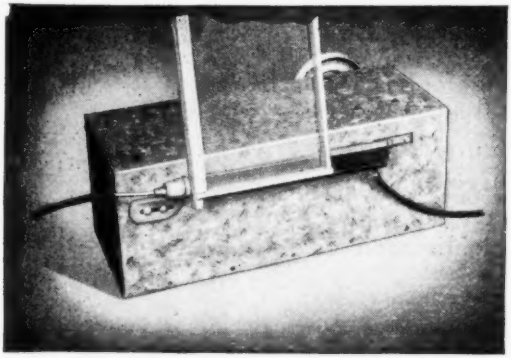

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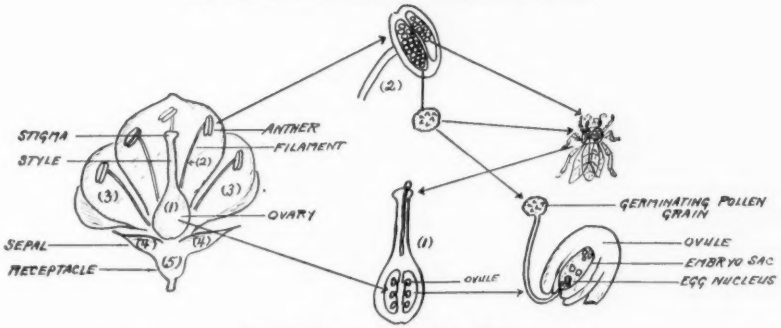
Gleanings in Bee Culture

Created to help beekeepers succeed

The Mechanics of Pollination and Fertilization

By Charles W. Gouget, Glen Ellyn, Ill.

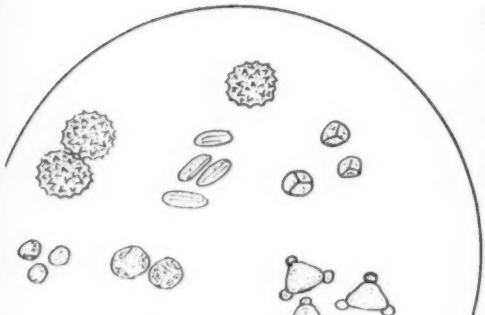


The Parts of a Complete Flower
1. Pistil consisting of stigma, style, and ovary; 2, stamens consisting of anthers and filaments; 3, corolla consisting of all the petals; 4, calyx consisting of all the sepals; 5, receptacle, the base which holds the flower.

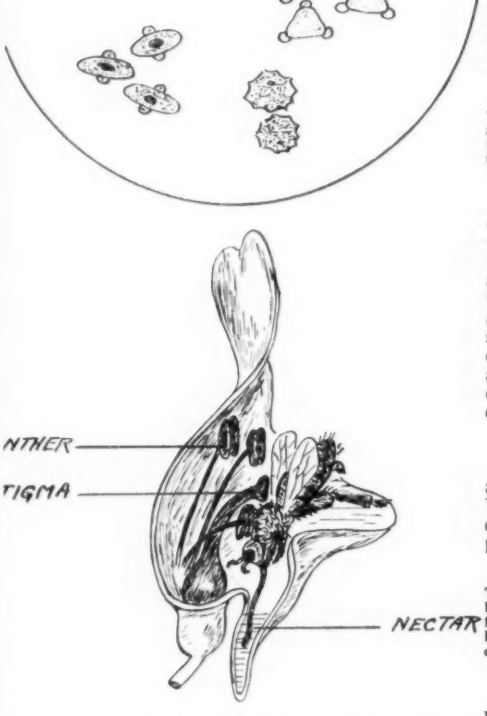
To the average person the process of pollination is shrouded in mystery, and the mechanics in the act of fertilization are practically unknown. Pollination is simply the transfer of pollen from the anther to the stigma of a flower, but if the transfer takes place on the same flower we call it "self" pollination; if it takes place between two different flowers we call it "cross" pollination. To fully understand this process it is necessary to know the structure of a typical flower and to become familiar with the terminology used.

In this article a typical flower is considered to be a complete flower, that is, a flower that contains all possible floral structures and all possible reproductive organs. (See diagram.) The primary purpose of any flower is to produce seed from which a new plant may be reproduced. Seeds, either directly or indirectly, produce the major part of our food supply. The structure which plays the most important part in the production of seed is the pistil. The pistil consists of three

Mr. Charles W. Gouget is a graduate of the Pennsylvania State College, B. S. in Horticulture; M. S. in Plant Physiology, University of Chicago, and a teacher of biology for 20 years at the Austin High School in Chicago.—Ed.



Types of pollen grains seen through a microscope. There are almost as many types of pollen as there are types of plants.



The honey bee forces its way to the base of a flower to obtain nectar for food. The service it renders in pollination as a result of this act is accidental and unplanned.

produced in the ovary is equal to the number of ovules present.

Stamens usually surround the pistil. (See diagram.) They consist of the anthers which hold the pollen grains, and the filaments which hold the anthers up to expose pollen grains to air currents, and to enable them to be dusted more easily over the backs of insects.

At the base of the stamens there are structures called nectar glands which secrete a sweet sugar solution which attracts bees and other pollinating insects. This sweet juice is the carbohydrate food for bees which in concentrated form becomes honey in the hive. While forcing its way to the base of a flower to obtain nectar a bee is often dusted with pollen grains from anthers that may shake over its back. On a visit to another flower some of the pollen on the bee's back may be accidentally brushed on to the sticky stigma of the new flower. This accidental transfer of pollen from the anther of one flower to the stigma of another on the body of the bee is cross pollination.

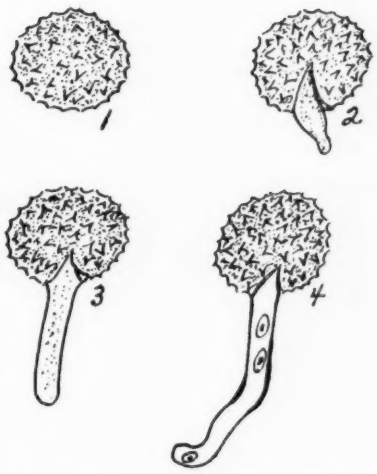
Pollination

Pollen in any quantity appears as a powder in a wide range of colors: Yellow, red, orange, black, green, or gray depending on the type of plant that produces it. Under a microscope this powder appears to be made up of small grains with a definite shape for each type of flower: some smooth and round, others rough and round, and still others oval, etc. These pollen grains are cells; they are alive, and under proper conditions they will germinate like a seed. Also like seeds they must be allowed to ripen if normal germination is to be expected. When the anthers or pollen sacs open, the pollen is ready for pollination, and it becomes the role

parts: the stigma, the style, and the ovary. The stigma at the top of the pistil is for the purpose of catching pollen grains blown by the wind or deposited by insects. Its efficiency is often increased by the length of the style and by a sticky, sugar-like substance which acts like sticky flypaper to catch pollen grains. The ovary, which may develop into a fruit contains the seeds which develop from structures called ovules. The number of seeds that can be

of insects to transfer the pollen to the stigma of flowers.

Many fruit trees are self sterile and must be pollinated with the pollen from another tree. This fact is true of many apple varieties, the Bartlett Pear, the Hale Peach, and sweet cherries. The same fact holds true for many garden fruits and vegetables such as strawberries, melons, squash, pepper, eggplant, pumpkin, and watermelon. It is estimated that over 35 commercial vegetable crops are dependent on the honey bee for the production of seed. This service is accidental and unplanned by the honey bee, but it is the most important phenomenon in the world, and it is worth many



A germinating pollen grain, numbers 1 to 4. The pollen tube, numbers 3 and 4, works its way down the style to the ovary where it enters an ovule through a micropyle.

times the largest honey crop ever produced.

Types of Flowers

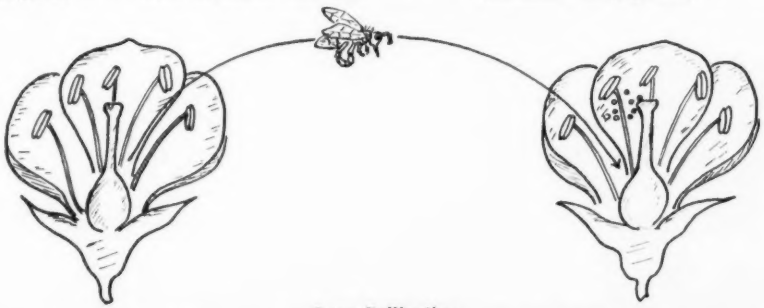
Flowers can be classified into complete and incomplete flowers, and into perfect and imperfect flowers. A flower that has all possible parts is called a complete flower, while a flower that is missing one or more of its parts is an incomplete flower. (See diagram.) Some incomplete flowers contain only anthers, others contain only pistils, some are minus a calyx while another may be minus a corolla, etc. Almost any part or combination of parts may be missing on an incomplete flower.

A flower that has both essential organs, i. e. both stamens and pistils, is a perfect flower; one that has only stamens or pistils is an imperfect flower. (See diagram.) All the structures of a flower aside from the essential (reproductive) organs, i. e. the stamens and pistils, are the floral parts. These structures consist of the petals which make up the corolla and the sepals which make up the calyx. (See diagram.) Since the primary purpose of a flower is to produce seed for reproduction, the petals often have brilliant colors to attract pollinating insects. Pleasant perfumes also aid in the attraction without which we would have very few fruits, vegetables, or flowers.

Fertilization

Pollination is the initial step toward the act of fertilization. Pollen

(Continued on page 443)



Cross Pollination

Many fruit trees are self-sterile and must be pollinated with the pollen from other trees. This service which is performed largely by the honey bee is the most important phenomenon in the world, and it is worth many times the largest honey crop ever produced.

Beekeeping in New Zealand

By John McFadzien, Dunedin, S. W., New Zealand

An apiary sheltered from south winds.

[Mr. Fadzien is editor of "The New Zealand Beekeeper", a bee journal published quarterly in that country.—Ed.]

New Zealanders eat honey at the rate of nearly five pounds per head per annum. The normal production of the country is sufficient to meet this demand and there is usually a small proportion available for export to the United Kingdom.

New Zealand extends about 1000 miles north and south while its average width is 100 miles, and the nearest neighbor is Australia, 1200 miles to the west. The 40th parallel South divides the country almost at the center. By way of comparison we find that the 40th parallel North runs through Columbus, Ohio, and Denver, Colorado, in the United States.

Geographically New Zealand presents some striking contrasts, but generally speaking is mountainous in character and the climate is mild with a sufficient rainfall. The plains and river valleys grow excellent pastures and the main products from these areas are butter, cheese, meat, and wool. The population of the Dominion is almost two million.

Development of Beekeeping

Bees were first brought to New Zealand by the early settlers in 1839. The introduction of new methods—the movable-frame hive, the centrifugal honey extractor, artificial comb foundation, and motor transport—resulted in a steady increase in honey production accompanied by a trend toward commercial rather than domestic units. The first Apiaries Act, which prohibited the keeping of box hives, was passed in 1906 and in 1913 provision was made for the compulsory registration of apiaries. This legislation has greatly facilitated the work of the Department of Agriculture which has rendered an increasing service to the industry. At present the Department maintains a staff of about ten officers doing instruction and inspection work, while the more scientific and technical problems are being investigated by a qualified research worker at the Animal Research Station near Wellington.

Meetings of beekeepers which took place from time to time in the early days culminated in the formation of the National Beekeepers' Association, "an organization for the advancement of the beekeeping industry in New Zealand." The Association now has over 20 branches in the main producing

areas and its membership includes most of the commercial producers as well as many operating on a part-time or domestic basis.

As a result of these several factors the industry is now fairly well developed and most of the likely honey producing districts are occupied. Italian bees, which were introduced about 1880, are now almost universally favored, but the original black bees still predominate among "wild" colonies and they tend to invade commercial apiaries if breeding is wholly neglected.

At present a total of 180,000 colonies are registered in the Dominion. The normal size of a commercial unit is from 300 to 500 colonies; some, however, are extensive and several producers operate over 1000 hives. Most beekeepers would regard 60 to 80 pounds of honey per colony as a fair return, but the statistics indicate that the actual colony average is between 50 and 60 pounds.

Generally speaking, the honey from the southern parts of the country is lighter in color and milder in flavor than that produced in the north.

Nectar Sources

White clover is by far the most important source of nectar in New Zealand. Sweet clover is rarely grown. However, there are numerous minor sources; some of these supply useful spring or autumn feed, while others either provide a substantial surplus in themselves or at least impart their distinctive flavors to some of the packs which appear on the market. Cat'sear (**Hypochaeris radicata**) is a widely distributed pasture weed, with a flower resembling that of the dandelion, which yields well in late summer. The honey from this plant is light amber to white in color with a pleasant flavor.

There are still some large areas of native forest (or "bush" as it is commonly called) and some of the trees give copious yields. Rata (**Metrosideros umbellata**), which is noted for its masses of brilliant red flowers, provides a fine quality honey and heavy crops are sometimes secured from this source.

There is one source of nectar which deserves special mention. It is a native shrub named manuka (**Leptospermum scoparium**) which occurs in most parts of New Zealand, especially on the foothills and in gullies which are too steep for cultivation. Its flowering period is earlier than that of white clover and it secretes nectar profusely. The honey has been compared with the heather honey of Europe; it is rather dark in color with a strong, but wholesome, flavor and it has a jelly-like consistency which makes it very difficult to extract from the combs. Producers in some northern districts have developed a technique for extracting the honey, and in other cases it is harvested as comb honey. But usually manuka is avoided in the selection of apiary sites because the honey complicates extracting operations and it destroys the delicate characteristics of the finer honeys.

Pollen is plentiful in most districts. The value of pollen supplement has been demonstrated in a few areas where the supply is uncertain but so far it is not widely used.

Production Methods

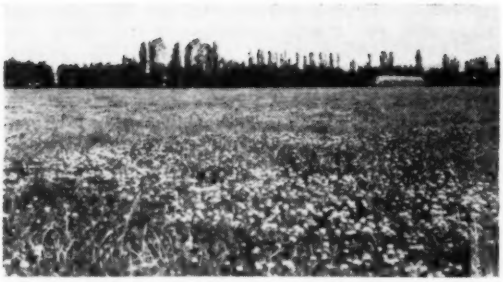
Commercial apiaries, or "yards", vary in size but usually number from 30 to 50 colonies. In some districts the farmers appreciate the pollination service of bees in the production of clover and other small seeds and in these areas apiaries of ten or twelve colonies are common. The standard Langstroth hive is used almost exclusively.

Many producers obtain good results without the use of queen excluders but they are generally considered to be a decided advantage in hive management.

Colonies progress fairly rapidly in the spring and swarming is sometimes a problem. Many methods of control, including variations of the Demaree system, have been used, and each beekeeper usually develops a system to suit his own district and his own temperament.

Methods of supering vary with the nature of the honey flow and the individual ideas of the producer. This applies also to methods of removing the honey; the bee brush, the smoker, and the bee escape are commonly used, while carbolic screens are known to be effective provided their dangers and their limitations are fully understood.

Some apiary buildings are of two stories, the honey running into the tanks by gravity, but generally honey houses of one floor are preferred and honey pumps are used



Clover and ryegrass pasture in a dairying district

to lift the honey. Uncapping is done with a steam-heated knife or uncapping plane; power uncappers have never "taken on". In some cases, especially where manuka honey is encountered, reversible basket extractors are still used. In other districts first the radial, and now the semi-radial, are proving more popular.

No standard system of rendering cappings has yet been evolved and many variations are in use. In some outfits the cappings fall directly into the melter, in others they are allowed to drain before being transferred to a suitably constructed oven. Wax from old combs and slumgum is reclaimed by means of a boiler and wax press.

Practically all New Zealand honey is sold in a granulated condition and it is heated only to facilitate handling and clarifying. After clarification the honey is "started" (so as to ensure a smooth texture when granulation takes place) by thoroughly mixing in about 5 per cent of suitable granulated honey. The honey is then packed and if possible stored in a cool room until granulation is complete. The most popular retail containers are one pound and two pound waxed paper cartons, but five and ten pound "tins" are also used, especially for sales at the apiary. Glass jars are not used extensively.

For many years New Zealand beekeepers have considered the possibility of controlling the production of honey by the licensing of apiary sites. The idea is to prevent uneconomic competition and unfair encroachment on territory which is already occupied. Although a detailed scheme has been drawn up it has failed to receive wholehearted support and so far no action has been taken. The subject is one which bristles with difficulties and many producers feel that it is better left alone.

Diseases and Pests

American foulbrood is the most serious bee disease in New Zealand. Statistics show that the incidence of this disease is about two percent. With the present careful inspection program and a system of burning or sterilizing diseased equipment, it is believed that the situation can be further improved, and it is considered that treatment with sulphathiazole would be unwise in this country.

A fairly widespread outbreak of Nosema occurred four or five years ago but, with this exception, it is only occasionally that apiaries are seriously affected.

The wax moth is a source of trouble in the warmer districts, and field mice can also cause considerable damage. Most beekeepers use some positive method of excluding mice from the hives during the winter months.

In 1945 a wasp (or wasps) of the species **Vespa Germanica** arrived in New Zealand, probably by air, and the descendants of this wasp are certainly thriving in this country. Experience in the areas already infested indicates that they may become a menace by robbing from hives in the autumn and by besieging honey houses during extracting and packing operations.

Losses of bees from spray poisoning have occurred from time to time in fruit-growing areas and the spraying of fruit trees in bloom is now prohibited by law. Some of the newer chemicals being used in agriculture represent a further danger to bees but it is hoped that this may be averted by cooperation within the farming community.

Honey Marketing

Two important difficulties are en-

Lake Wakatipu. A view showing typical New Zealand scenery.

countered in marketing honey. The first arises from the wide variety of nectar sources and the consequent variation in the characteristics of the honeys produced. The second difficulty lies in the number of beekeepers (especially some who have other interests besides honey production) who sell their produce carelessly. Honey loses popularity when some lines are offered for sale in poor condition, and prices fall if whole crops are dumped recklessly onto a delicate market. It might be doubted whether it is possible to devise a marketing system which will solve these problems without being so cumbersome as to collapse under its own weight. New Zealand beekeepers have shown that they are willing to try, at any rate.

About 1915 and again about 1933, cooperatives were formed with the object of marketing honey on a pooling basis. Each of these companies continued for some years with a considerable measure of success, but each eventually ceased operations in the face of difficulties. Undoubtedly the greatest difficulty was the weight of freight, repacking, and overhead charges which are inseparable from a pooling organization.

In 1938 the State Marketing Department set up a Honey Section with a modern packing depot capable of handling perhaps half of the total Dominion crop. This central organization has a stabilizing effect on the market, and it is assisted by a levy of a half-penny (rather more than half a cent) per pound on all honey retailed outside the pool. The operation of the packing plant, and the administration of the pool account and the levy fund are in the hands of the Marketing Department, acting on the advice of a Marketing Committee consisting of two Government nominees and three elected producer representatives.

Broadly speaking, the object of the scheme is to place one or more reliable standard blends on the market and to provide a satisfactory bulk honey outlet for beekeepers who cannot conveniently distribute their own honey. Most producers believe that the half-penny levy is a small price to pay if this objective can be achieved.

Honey prices were controlled during the war and ceiling prices are still operating, but they are now regarded as a level to be maintained rather than as a limiting factor.

The steps which have been taken to organize the New Zealand honey industry — the prohibition of box hives, compulsory registration, a State inspection service, the levy to develop and control the market, and the movement to introduce licensing of apiary sites—raise an interesting question. To what extent is an industry, or a community, justified in surrendering individual liberties in order to achieve economic security?

Without attempting to answer that one there is this to be said: The honey industry in New Zealand is in good heart. Production has gradually increased without any artificial stimulus from subsidy payments, and the greater part of the crop is absorbed on the local market. So far no action has been taken to promote honey sales by means of a nation-wide advertising campaign, and the levy provides funds for this purpose when the need arises. Add to these considerations the fundamental importance of the industry—its unique service in the field of agriculture plus a product having the fine qualities of a natural foodstuff — and it seems that beekeeping should remain an important part of the Dominion economy in years to come.

Bees as a Hobby

By Orill L. Pearson,
Chattanooga, Tenn.

Even before the days of Sampson and Delilah, and on down through the ages, bees have exerted an influence, not only on the thought and customs of kings and queens, but also on the thought and customs of the common people as well. To the child, the middle-aged, and to the aged the bee has been an object of ever increasing interest. Perhaps their interest was centered in the fact that the bee is a pollinizing agent. Or, and this is not perhaps, but definite, they have a liking for honey. On the other hand, the bee has the reputation of being a willful aggressor; this, however, is not true. Do not all animals have the means of protecting themselves against an invader? Have they no rights, no prior claim to the fruits of their labors? To rob them of their precious stores is of the nature of vandalism. Would you not resist if you were being despoiled of your property?

Socrates had a kindly feeling for these industrious little creatures, and thought that earth-bound spirits, such as the spirits of virtuous persons, would take, after death, the form of the bee. Aristotle says that the cleanly habits of the bee should receive due praise, but that the bright and shiny bees—the drones—were idle, like women. Furthermore, man's basic behavior is more like that of the bee than that of the monkey and chimpanzee, so say the zoologists. The bee is a social creature, living in well organized communities. Her habits are flexible, since she can adapt herself to any necessary change of occupation. She can do the work of a nurse bee, house bee, or field bee and be equally efficient at either. Moreover, she can adjust to changing environments. Although she is ruthless on occasions, yet under other circumstances she will sacrifice even life itself for the good of the swarm.

We will assume that our hypothetical hobbiest has freed himself from the entanglements of the city and has found refuge in a quiet rural neighborhood. His dreams of a hobby that would satisfy his yearning to join hands with nature has

The hobbyist enjoys watching his bees.

so far been rather vague. It must, he knows, be something constructive, but something also that has about it the element of romance. Yes, you have guessed it; he is an esthete. Nature thrills him; flowers and flowering shrubs and trees are his special delight. Had he the time, he would be a botanist. A botanist! Here is the answer. But how? Like a flash the thought came to him that the little bee should be his teacher; that together they would explore the fields, the woodlands, and the mountains in search of hidden sweets; that they would soar on swiftest wings to secluded valleys and uplands, facing the sun at noonday or in the cool of eventide. Peace fills his soul as he decides to cast in his lot with the wonder-working bee. Gradually his dream assumes the form of reality. His neighbors have orchards and growing crops that need pollinizing, whereas he has a definite weakness for honey. But he has never handled bees, and he begins to doubt his ability to manage them. Fortunately, he remembers that there are a number of good books on the market which are easily understood, so he browses in bookshops until he finds one written especially for beginners. From what he learns concerning the bees he feels a deep kinship to this small insect which played a part in the life of the biblical

character, Sampson. His enthusiasm grows by leaps and bounds, until he can restrain himself no longer. His mind is made up; he will start a small apiary. Henceforth bee catalogs take the place of his regular reading; in fact, he carries them with him to his work. Never again will he be the same person.

He studies the catalogs on bee equipment with greatest care, and notices that the ten-frame hive is the most popular. Of course, this means very little to him, for he is a novice, but he will learn. The hive, he thinks, is a complicated affair, although it fascinates him nevertheless. He also takes note of the fact that there are listed numerous gadgets supposed to be useful in handling bees. After due deliberation, he decides on five colonies of bees and equipment. The order is made out and, to hasten matters, it is deposited in the post office. It is true that the order has just been mailed, but he expects delivery tomorrow. Days pass and he does not hear anything from his order. He is just about to write them a nasty letter when he receives a card saying that his order has been shipped. He is all excited now. Can he set up the equipment when it comes? Can he put the bees in the hives when they arrive? He remembers, however, in time to save his sanity that the unknown can not be known until he tries.

The doorbell rings and the expressman is asking his name. He is calm and gives directions without the least sign of agitation, although he is overcome with curiosity. To his dismay he sees that there are ten cartons. He knows now what the letters, k. d., in the catalog mean. He wonders why he was ever so rash as to assume responsibility for such a venture. In a separate box are a bee smoker, which when filled with rags and lighted, emits a cloud of ill-smelling smoke, intended to subdue the fiery tempers of these little demons incarnate; a complete suit of armor including a helmet and corselet, to say nothing of gauntlets for the hands, which give the wearer the appearance of a knight of the Middle Ages, but intended to protect the body in this battle of the spoiler against the spoiled; a hive tool resembling a safecracker's jimmy and to be used in much the same way; a queen excluder which deprives the queen of her royal prerogative to go where she pleases; a bee-escape, which, in a tricky way, allows the bee to pass out, but shuts the door in her face when she attempts to return. All of these things will become meaningful to him in due time.

The book says to give plenty of room as a swarm prevention.

"Attention, instructions inside", reads a label near the top of the carton, but which are about as understandable as a thesis written in Chinese. The instructions say that it takes a top bar, a two-piece bottom bar, and two end pieces to make a frame. The bodies are to be put together in such a way that the handholds will be on the outside of the hive. In the box are dozens of pieces. Top bar, bottom bar, and end pieces must mean something, but what? Gradually the instructions become instructive, and the sound of his hammer becomes rhythmical. A frame is completed and all becomes clear. He now proceeds from frames to super, from super to hive. The hive when completed, he is forced to admit, will make a cozy home for his bees when they arrive.

B & Z Library

The hives are a resonable distance from the house, and face south.

The bees arrive at last, but new doubts assail him. The little wire cages look mighty forbidding. He dons his garb, however, with many misgivings. He guesses rightly: there are thousands of bees in each cage. The task before him, he decides, is too much for him; it simply cannot be done, but it must be done. He reads the instructions again and again: take out four frames, and after removing the cover from the top of the cage, remove the syrup can and the queen cage, which is fastened by a wire; set the bee shipping cage in the space made vacant by taking out the four frames and put the queen cage, candy end up, in a space made vacant by taking out another frame; take the paper off the candy end of the block; put the syrup can in the empty super and close the hive. Remember to feed them for a week or longer. Simple, isn't it? What happened in this case? Fear made a coward out of him: doing the thing gave him confidence in himself. After a few days, he can remove the cages, syrup can, and queen blocks, and all will be well.

He removes the shipping cages and the queen blocks on the third day. He sees with satisfaction that the workers are drawing comb. In a few more days the queen can begin laying eggs. He is incredulous, however, when he thinks of the staggering number of eggs she can lay in one day — 15 to 18 hundred, some authorities say. After closing the hive he fills the Boardman feeders with sugar syrup and awaits results.

The location of the beeyard is given special attention. The hives, he decides, should be placed a reasonable distance from the house, and should face south, to get the morning sun. They should also be raised about six inches off the ground, with the front of the hive a fraction lower than the back to drain off moisture. Weeds and tall grasses must be cleared away so as not to obstruct the entrance. As a last precaution the yard must be fenced in, to prevent live stock from upsetting the hives. When all is completed, it meets all the requirements of a well-arranged beeyard.

Activities begin in about three weeks. Young bees are seen mingling with the older bees, and he knows that the queens are prolific layers. Traffic increases and a steady hum is heard within the hive. Non-interference is best, the book said, unless there is some indication of serious trouble. Field bees are on the wing. Incoming bees are heavily laden with nectar and pollen. One bee especially attracts his attention. She is gracefully executing some kind of dance, known as the honey dance. In other words, she is telling the other bees that she has found rich pastures and is inviting them to join her when she returns to the field. By this time our hobbiest is no longer surprised at anything they may do.

The phrase, "a land flowing with milk and honey", takes on a new meaning. The whole valley is aflame with the scarlet blossoms of the crimson clover; orchards in full bloom compete with all other bidders for the attention of the busy bee; sourwood, poplar, linn, and sumac dot the mountains from foot to summit until they resemble the hanging gardens of ancient Babylon. A little later, the goldenrod and the asters will be hosts to the honey-gatherers. Never before has our hobbiest been so conscious of the

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Increasing Honey Plant Acreage

By Robert M. Mead, White River Junction, Vt.

While the individual beekeeper can do a great deal to increase the acreage of honey plants or the variety of them available by sowing suitable plants in waste places, the best chance today to make an impressive increase in honey plant acreage is by cooperating with other groups and encouraging them to use dual purpose plants that serve both their purpose and those of the beekeeper. It may come as a surprise to many to find that at times groups with very diverse interests may be well served by plants that will benefit both.

For instance, one would not think that the beekeeper and the fish and game club would have much in common, yet there is a common ground in Lespedeza Bicolor, a good honey plant and an ideal quail food. A third group, the soil conservation men, tie in here also as Bicolor is of perennial shrubby growth ideal for preventing erosion. It would be worthwhile for the beekeeper in good quail country to take some interest in his local fish and game club, suggest the use of Bicolor, and help with some initial plantings. Considering that this plant is long lived the cost to the beekeeper may be very little compared to long term benefits. Also a talk with soil conservation men may be in order as they are usually more than willing to cooperate in any reasonable way with local related industry. Some other plants may well fit into the fish and game field but I do not have definite information on them as yet.

The Wagner Pea is one that might furnish abundant forage for game animals on poor land but more work needs to be done on this to get a better idea of its possibilities in this line. It is well to remember that most of our game is limited by the amount of feed available, and where that feed may be increased by honey plants it is up to the local beekeepers to call the sportsmen's attention to the fact.

One more item is worth mentioning here, and that is a mixed hedge of Tartarian honeysuckle and Siberian pea tree, which not only makes good cover for small game birds but furnishes a lot of early nectar.

Probably the most time-honored honey plant in the United States is the sweet clover that was established along many hundreds of miles of roadsides by beekeepers of an earlier day. Today, in many places, those plantings suffer some because the road maintenance men start their mowing machines just about the time the clover comes into bloom. Where it is not possible to get road men to leave the clover till the bloom is over we may well turn to other plants that will serve the same purpose.

On suitable soil, meadow sage will bloom before the mowing starts, will spread in a satisfactory manner, and will not be harmed by being mowed over later in the season as it grows from an earth-hugging crown. Bird'sfoot Trefoil is another good possibility for roadside planting where the soil and climate suits it. This might be mowed off but would not suffer as much as the rank growing varieties of sweet clover do. As far as sweet clover itself is concerned, there are dwarf early blooming kinds that would usually bloom ahead of roadside clean-up programs and that would not be as objectionable to the road men as the more rank varieties. Where new road banks are being seeded a talk with the engineer in charge may do some good if the beekeeper will make a reasonable approach to the situation. Looking at it from the engineer's point of view you will probably find that he wishes to make the road banks look attractive, prevent washing, and simplify maintenance. He will probably be willing to use some honey plants in his seedings if he is convinced that they do not have any objectionable features.

The alert beekeeper will constantly find chances to promote some worthwhile honey plants among his friends. In the matter of planting trees for reforestation probably at the present time a thousand or more of the evergreen varieties, such as pine, spruce, and fir, are planted to one of the hardwood kinds. It is well to suggest to people doing this work that at least a few trees of such kinds as basswood, sourwood, and tulip tree, or one of the locust

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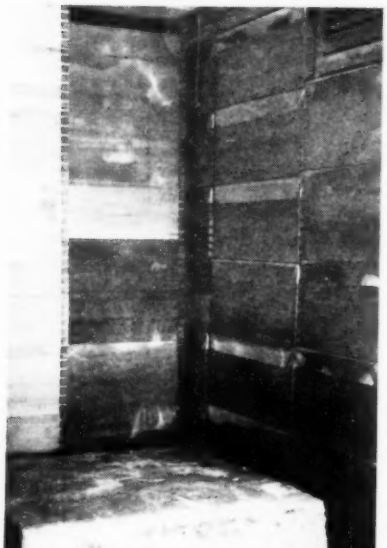
A Useful Stone Block for the Apiary Workshop

By David Bone, Beckenham, Kent, England



Several years ago I designed a stone platform for the extractor when in use. I wanted a firm support, and something to which the machine could be fastened securely down. And I wanted something that would raise the extractor to just the right height for placing a large can or pail under the tap, and for easy turning of the handle. For these reasons I decided to construct a block of concrete, of appropriate size, in the middle of my workshop, which has a concrete floor. I asked myself whether it would not be an insufferable nuisance to have a great immovable block of stone stuck there in the middle of my small workshop all the year round; but I somehow felt that it might prove useful for other things as well as extracting.

Accordingly I cleared the space, and constructed a rough-and-ready mould out of some boards and sheets of metal that happened to be handy. In the middle of this matrix, as a sort of foundation stone, I placed a large unsightly chunk of rock that

A near view of the block and the work done upon it.

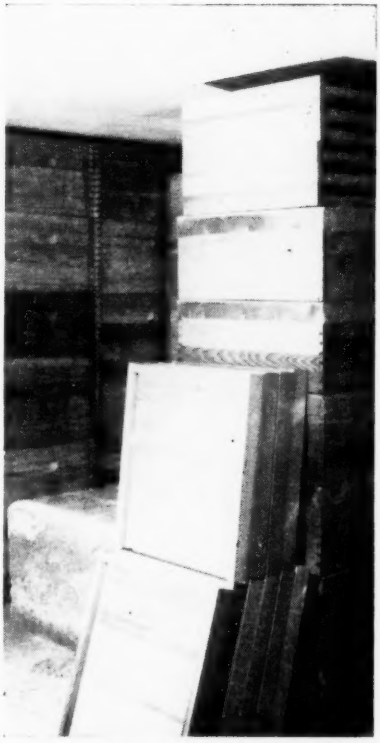
The workshop, showing the central position of the block.

had been lying about the place, and generally making a nuisance of itself. I was glad to see the last of it. I then filled up the spaces with concrete, embedded three blocks of wood flush with the top surface for anchoring the extractor, and finished off the top as smooth and level as I could with cement.

When the concrete had hardened, I took away the supports, and surveyed my handiwork. I could hardly admire it; for it was very rough and uneven—even (or uneven) for a beginner with concrete. However, when we came to use it, it served its purpose admirably, and has done so ever since.

But that is not why I write these notes. I write them because we immediately found the low solid platform in the middle of the workshop floor useful for a thousand other things throughout the year. It is so useful that I would not now be without it, even if we never did any extracting.

Its most useful purpose of all has turned out to be for assembling hives on. We have a good strong firm bench, but we always prefer this low block. It seems to be just the right height for making up hive bodies and supers, for which an ordinary bench is too high. Furthermore, it is literally as firm as a rock; and this is an inestimable advantage. We find the low block preferable to the bench for assembling all hive parts, with the possible exception of inner covers and frames; though even for these I often prefer to kneel on a sack and do them on the block. Its utter solidity and large surface make it more convenient to work on than the bench, even for some of these small jobs. For putting the metal on covers, it is extremely useful, and I think much more so than the bench because you can get all around it with ease. It is also very convenient for cutting up the large sheets of metal for this job. It should be added that owing to the roughness of the surface of the block, due to my faulty workmanship in finishing it off, we usually throw a piece of sacking over it before assembling hives, so as not to abrade the woodwork.



The block surrounded by equipment that has been assembled on it.

The block is also useful for all hammering — particularly for the larger and heavier jobs, which are often unwieldly or impossible on the bench. Another valuable use is for sawing. Long boards can be managed with ease; and the low solid block gives a convenient support.

The lowest and most degraded use the block has, is for sitting down and resting on. It appears to be just the right height for this too; and if any part of it is not already in use or cluttered up, then somebody is almost sure to be found there, taking the weight off his feet.

The dimensions are 26½ inches square by 17 inches high. These measurements, as I have said, were worked out simply to accomodate our extractor; but by chance they seem to be just the right ones for a stone work-bench of the type that I have described; and I would not wish to alter them.

We would not like to be without our block. Age cannot wither, nor custom stale its infinite variety.

This is typical of Dan's yards. When I took this picture in early October, 1950, there were about 30 deep and 40 shallow supers above double brood chambers on 17 colonies. Dan admits they were not all full to the top. But he did not lose any honey for lack of a place to put it.

Why Does Dan Stack 'Em So High?

By R. S. Snare, Cherokee, Kansas

That question has been asked me more times than I can remember. It concerns the yards of a friend of mine who really does stack on the supers. It seems that most of our local beekeepers just can't imagine the possibility of getting more than one or two shallow supers from a hive of bees. Some have asked why he leaves two and sometimes three standard hive bodies with the bees during the winter. It has been my privilege to help Dan "rob" and extract every fall from 1946 to 1949. He always took from 12,000 to 13,500 pounds from around 200 colonies. That is not any record, but it beats the local average by two or three times. This fall I had other irons in the fire and so did not get to help him.

But I imagine he did a little better than the past four seasons. My own 40 colonies made about 4200 pounds, the best of my four years' experience.

Last spring I accepted the opportunity to work as a state inspector in Cherokee County. It lies in the extreme southeast corner of Kansas. Our beekeepers are nearly all back-lotter and farmer beekeepers. The largest number of hives owned by one man was 34. Two other yards were owned by Crawford County men who own 100 colonies or more. There are scores of beekeepers with from one to a dozen. Many are box-hive beekeepers.

Two men with 26 colonies in partnership had 100 percent foulbrood infection. It was bad for two miles around them, and doubtless it will be next year, or perhaps longer. All in all, the beekeeping situation locally is not too good.

But to get to the point that I am trying to bring out. I believe that more honey is lost by a lack of supers and a lack of robbing than by any other cause. The majority of the beekeepers I encountered had not put on any supers last year, and a large part of those that had put on supers had not removed them yet this spring. Nearly all good healthy colonies so handled had supers full and burr combs built in every nook and cranny.

Too Few Supers Too Late

The reasons for such handling were of a pattern. Fear of the bees was one. Too busy with other tasks was another. Many beekeepers did not have enough supers to go around the hives. In some cases the caretaker had died or left home. A few thought that honey was too cheap to bother with. In some places the hives were almost completely decayed or termite-eaten. Often complaints of crossness were probably due to ants. Several owners were

anxious to sell out, and some would give them away.

Once I went to a place where there were five or six eight-frame hives with two hive bodies and two shallow supers each. All were heavy with honey and most combs were black from brood rearing. Two of the hives were so rotten that I feared they would fall to pieces, but by careful handling I was lucky. The lady owner said they had not been robbed for years and they always swarmed and flew away. This spring they were still healthy and very strong, probably just ready to start their annual dividing again.

At another place I found eleven box hives. They were the easiest box hives to examine I found. They were not nailed to the bottom boards nor slatted across the bottom. If all box hives were like that I would not complain so loudly. When I asked the owner's wife how much honey they got last year, she said, "Oh a lot". But upon closer questioning I found that "a lot" was about 15 pounds. And that was **not** per colony.

Dan's "Skyscraper" being torn down. Ed Banks is facing Dan Kilduff.

Many were the lessons I learned this season. But, like my military service, I would not take anything for the experience, but neither would I want any more. But I believe that the things I would warn others against most would be "too few supers too late", and don't encourage Tom, Dick, and Harry to keep bees.

[It seems to be a fact that many more car loads of surplus honey could be secured during a favorable season for honey in this and other countries—if only beekeepers would put on an ample number of supers—in time. Strong colonies simply must have sufficient comb space for brood rearing and the storage of incoming nectar and pollen during a heavy honey flow, or hives will become honey bound, swarms will issue and perhaps find homes in trees and buildings, if not hived.—Ed.]

Dans "Skyscraper" at Hosey Hill. This was Dan's tallest hive in 1949. It was full to the top and so strong in bees we left three hive bodies, feeling they would be too crowded in two.

How I Have Found Relief from Bee Stings

By Mrs. Charles Armitage, Williamsville, N. Y.

About five or six years ago my husband and I succumbed to the "beekeeping fever" and after much studying of the fascinating subject during the winter, we ordered a beginner's outfit and a package of bees.

Our guardian angels must have been giving us special protection when we installed the newly arrived package in the waiting hive, sans benefit of veil or gloves, for we received not a single sting. But a few days later when we wanted to snoop and remove the cage, we luckily girded ourselves with veils and gloves, for the occupants of that hive were no longer the docile, syrup-gorged darlings we had dealt with a few days before. One of them "let me have it" right through my canvas glove. My finger swelled, my hand swelled, then my wrist, forearm, and up to my shoulder. I felt feverish and sick. I was then employed as a secretary, and my fingers and hand were so swollen that I was unable to type.

I grinned and bore it, optimistically thinking, "This is just my first one. I'll build up an immunity after a few more." But that was just the beginning of a series of similar painful episodes after each sting. On a later occasion, the poison, or whatever one might call it, was transferred to my infant son, whom I was then nursing, and he too puffed up like a balloon and became slightly feverish.

Unfortunately, I did not build up an immunity. Neither did my husband. Some of his reactions were more acute or violent than my own. But the beekeeping mania had us in its clutches and we refused to give up our hobby. We even increased the number of our colonies.

Then during the summer of 1950, through a strange coincidence, I accidentally stumbled upon a "cure" for my bee stings.

On that fateful afternoon I donned my beekeeping regalia and sallied forth. Zing—it happened—one of the little dears had found a vulnerable spot in my armor and let me know what it thought of my intrusion. I dashed to the house to remove the sting and await my fate. But nothing happened. Not even a tiny bump at the site of the sting! "Had I finally reached a point of immunity?" I asked myself. I didn't think that was the answer and probed further for the solution. Then the possible explanation began to take shape in my mind.

I had awakened that morning with all the symptoms of an impending cold, and immediately began dosing myself with one of the new anti-histamine drugs* recommended by my doctor. Having read somewhere that the anti-histamines were first developed as a relief for some allergies, I began to put two and two together. Without a doubt, my acute reactions to stings were nothing more than a severe sensitivity or allergy to them. Therefore, was it not sound reasoning to believe that it was the anti-histamine which had given me this blessed relief?

Here was something which merited further investigation and I resolved to become my own guinea pig in the experiment. Each time I received a sting, I immediately swallowed an anti-histamine capsule and each time the results were very encouraging—either no swelling and itching at all, or very little, depending on the severity of the sting and its location.

On one sunny afternoon I had started going through the hives when the skies rapidly darkened and a thunderstorm began to brew. I had only one more colony left to examine, and hoped the rain would hold off until I finished. This one, incidentally, is my ugliest colony, which I always leave until last, hurry through it, and then make a hasty departure from the bee yard, for no matter what technique I use on this colony, it always becomes riled and seems to spread the unrest to the other colonies.

I should have known better than to attempt to go through this colony under such conditions. No sooner had I pried the inner cover loose than it seemed the entire population of that hive came at me en masse. I dropped everything and ran, with a good percentage of the colony in pursuit. I was wearing a lined poplin jacket tucked into my blue jeans. They were unable to penetrate the jacket with their stings, but I could not say the same about the jeans. It felt as if a million red hot pokers

*Histadyl

were searing my legs. Actually, I counted some 30 stings on one leg.

After vanquishing the last of my attackers I shed my armor and hurried to the medicine cabinet for my capsules, removed the stings, bathed with a strong baking soda solution and followed with an application of rubbing alcohol. This time, I thought, even my capsules wouldn't save me, and I visioned myself resembling the fat lady of the circus.

An hour went by and nothing happened. I took another capsule. Evening came and still no swelling. To be on the safe side, I took another capsule at bedtime. When no swelling appeared on the following day, I felt certain that it must have been the anti-histamine capsules that saved me.

Not all my stings are received while manipulating the hives. A good share are received while working in the garden near the hives, and a good many of these are on my face or head. On one particular occasion last summer I received a sting near the edge of my upper eyelid, and I naturally expected the worst from a sting in such a tender spot. But thanks to the anti-histamine capsule the swelling and itching were not much more severe than the average mosquito bite.

Being of a scientific nature I wondered if it really were the anti-histamine capsules that had been giving me this blessed relief for these past two summers, or had I really built up an immunity? I resolved that after my next sting I would refrain from taking a capsule as a check. My next sting was received on my knee. Sure enough, my knee doubled its normal size and the swelling spread both downward and upward on that leg and lasted several days. Here was pretty good proof that the capsules were of value to me not only in preventing many colds and giving relief to hayfever, but also furnished relief for my bee stings.

But there is a dark side to the picture, too. I give this and the explanation given me so that the reader may not become too enthused or hopeful of success.

As stated previously, my husband experiences equally distressing reactions to bee stings, and, I'm sorry to say, my "cure" does not help him in the least. But neither do the capsules benefit him any in the prevention of colds. I discussed this with a physician and he explained that that is the way the anti-histamines work—for some people they are wonderful, for others they are useless.

In submitting this, I make no "cure-all" claims nor am I trying to boost anti-histamine. I have merely given an account of my experiences with this product for the benefit of my fellow bee-sting sufferers who might like to give it a try. Bear in mind that as a control I have submitted to only **one** sting without benefit of anti-histamine, and that for positive proof of its effectiveness, a good many more tests with controls are necessary. At any rate, I would welcome hearing about the results anyone else might have with this product or any criticism of my theory. As one doctor-friend put it, "I think you've got something there worth looking into." How about it, fellow sufferers? (See page 436.)

[Anti-histamines are being recommended for insect bites, so it is not illogical to suppose that they may be of benefit to allay distressing symptoms that some persons experience following bee stings. While an immunity may be expected in most cases there are certainly those whose reactions are so severe that stings must be avoided. Immunity, then, is slow and uncertain.

There are a number of anti-histamines on the market. Some are more effective than others. Not all people react to the same ones—that is, some work better for certain persons than others.

Since most anti-histamines may be bought only by prescription, Gleanings feels that the treatment should not be tried except with the cooperation of a physician.—Ed.]

"I merely mentioned feeding the bees and she volunteered to help."

Live and Learn

By Propolis Pete

Another one of the mysteries of beekeeping that can be explained when you find the answer is what a whale of a difference just a few miles make in apiary locations. It doesn't take very many experiences to prove just how important your location can be.

For years you have heard me crabbing about how poor it is right around here. Well, I must confess that it is better than it used to be, because here and there a farmer is trying out new crops and sometimes they yield nectar. It still isn't what you would call good honey country, but this year I start with 17 colonies here at home, and will keep my fingers crossed that I am not going overboard. Remember, even though the crops are more to my liking, bees still can't get nectar out of salt water and sand.

What started me off on this one is my "outyard". Last spring, way after fruit bloom, a friend who has a farm eight miles from here got to talking about pollination. One thing led to another, the end result being that I put in three packages and hoped that they could build up from comb foundation and go into the winter in good shape.

Not only did they each build out 20 frames of foundation, but two of them drew out and filled a shallow super. Those two supers came in mighty handy on two of my hives here at home that didn't do so good on the fall flow. It was more or less of a "bust" here, but there they did pretty good. The fall flow around here seems to be petering out. A lot of it used to come from the smartweed that grows up in the potato fields, when they dig them under for storage. It is a nuisance when the diggers go through, so now they squirt a little spray on them and bing, no smartweed.

This spring when the silver maples and elms bloomed, my bees were bringing in a greenish brown pollen and a brownish green pollen. That may sound confusing, but there were two distinct kinds of pollen coming in and that is the nearest I can come to describing it. Now there are a lot of silver maples right alongside my "out-yard", but were they working on them? Nope. They were bringing in huge lumps of yellow pollen. I toured the neighborhood looking for the source, but couldn't find a thing. Whatever there was, there must have been a pile of it, otherwise the bees would have brought back smaller pellets.

Very much the same thing happened last year. Towards the end of July, the bees here weren't getting a thing, but those bees were piling in something else that I could not locate. There were a few limas blooming at the time, and another friend of mine out that way claims to get lima bean honey. But I have never seen a bee in them and my friend where I have my bees told me that they weren't in his beans. When his limas were blooming heavily, my bees were taking a vacation. Could be that they yield with a certain combination of wind, weather, and warmth that so far has escaped my attention?

It is going to be most interesting to compare the two places throughout the year. I have lots of locust here, but there is not so much visible there. One of the troubles with locust is that it doesn't seem to yield every year. Some years nearly every tree sounds as though a swarm were rising, but other years the bees don't even notice it. Also, some years, some trees are covered with bees, and other trees in the same lot don't attract a single one. Another trouble with locust is that it blooms around the end of May and while the bees are fairly strong by then, they seldom are so far ahead that they can store a really big crop. When they do put up enough to flavor all my honey, it is really fine stuff and rarely crystallizes. I can show you samples 15 years old, as black as buckwheat from age, but which was a beautiful "honey color" when it was new, that are practically 90 percent liquid.

Sometimes we are thrown off the track when searching for a nectar source because the bees can cut across lots, whereas we humans have to stick to the roads unless we are able to use a helicopter. If you will take a road map of your section of the country, and draw a two mile circle with a compass, you will find that the bees have a lot of territory to cover that you never see. Unless you find it accidentally, you never know of it's existence. That probably explains the reason why my

(Continued on page 444)

Tasty Treats

By Mrs. Benj. Nielsen,
Aurora, Nebraska

Honey bran muffins.—Photo courtesy the Kellogg Company.

Even during summer's searing heat when we would just as soon turn the job of producing our daily bread over to the baker, we yearn for homemade bread now and then —especially when it is luscious cinnamon bread. So when a cool day comes along we heat up the oven and pop in some of this honey-way dough. Sometimes if I am pressed for time, I press half of the dough in a large baking pan, sprinkle with cinnamon sugar topping and have peerless coffee cake. The remaining dough I roll as usual. This bread is an exceptionally good keeper—if you can manage to keep any—and sliced thin and buttered, it is grand accompaniment for tall, frosty glasses of honey-sweetened iced tea. (Pouring the hot tea infusion over honey is much easier than stirring honey into the iced drink!) Guests are sure to ask for both recipes! Another boost for honey!

No matter how many honey-way muffin recipes we try, we always decide there is none better, or better for you, than the honey bran muffins pictured here. Even good cold, which is more than you can say for most muffins. Topped with honey spread, jelly or jam, the kiddies enjoy them as in-between snacks.

Always nice to have on hand for ice cream topping is the tasty honey chocolate topping which may be stored indefinitely in the refrigerator. Vary it with a sprinkle of salted peanuts, or pecans, or a dash of marshmallow creme.

Honey Cinnamon Bread

One cake compressed or one package dry yeast, ¼ cup lukewarm water, ⅓ cup shortening, melted, ⅓ cup honey, 1 cup milk, ¼ cup orange juice, 1 teaspoon salt, 2 beaten eggs, and 5½ cups sifted flour.

Soften yeast in water. Melt shortening and add the honey. Stir in milk, orange juice, salt, and beaten eggs. Add softened yeast. Then beat in two cups flour. Work flour in gradually and knead until smooth and elastic. Place in greased bowl and let rise until double in bulk. Punch down and let rise again. Divide dough in halves. Pat or roll in rectangular shape. Sprinkle generously with a mixture of sugar and cinnamon, roll as for jelly roll. Place in greased loaf pans. Let rise until double in bulk. Bake 50 minutes in moderately hot oven, 375 degrees F.

Honey Bran Muffins

Two cups ready-to-eat bran, ½ cup honey, 1½ cups milk, 1 egg, slightly beaten, 1 cup sifted flour, 1 teaspoon baking soda, ½ teaspoon salt, and 2 tablespoons shortening.

Combine bran, honey, and milk; let soak for 15 minutes. Stir in egg and melted shortening. Sift flour with soda and salt; add to soaked bran and stir only until combined. Fill greased muffin pans ⅔ full. Bake in moderately hot oven, 400 degrees F., about 20 minutes. Let stand about 5 minutes before removing from pans. Yield: 12 to 15 muffins.

Honey Chocolate Sauce

One cup cocoa, ⅓ cup sugar, ¼ teaspoon salt, ¾ cup cold water, ½ cup honey, and 2 teaspoons vanilla.

Combine cocoa, sugar, salt, and water. Place over moderate heat and bring to a boil, stirring constantly. Boil 3 minutes. Remove from heat, add honey and vanilla, blending well.

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Second Glances

C.M. Isaacson

The Price Support Program for 1952 is considerably changed from former years. With a loan program in addition to purchase agreements provided for, it has changed to distinctly a producer's program—the more so as packer contracts will no longer be made by the government. The whole setup can be a big help, if it is not viewed as a permanent crutch by beekeepers as a whole. Let us hope that we SELL our honey, not let it pile up in the hands of the several agencies administering the program (page 329).

The beekeeping year begins in August, says John Walsh of his West Virginia bee work (page 331). There is much truth in that—your preparation of colonies in the late summer or fall does much to influence your success or failure in the following season. Mr. Walsh leaves plenty of honey, makes sure there are young queens, plenty of pollen, and gives adequate super room **in time.** All this adds up to good beekeeping—his mention of 12 to 15 frames of sealed brood by the last of May and consistently good crops is proof enough of results. Yes, Mr. Walsh, I have often listened—with much pleasure—to the roar of an apiary at night during a good flow, and I would also get a thrill out of a string of fish such as you show in the last snapshot.

Beekeeping in Alberta has followed quite a typical pattern; a rapid increase during the war years and a following decline in numbers after. The description of weather, various honey flows, and most beekeeping practices are quite similar to much of the Midwest here in the States—with the exception of wintering. We have learned that despite our comparable long (and severe) winters, we can winter a good percentage of outdoor-wintered colonies. And sulfa treatment of disease has increased tremendously here; in the hands of the careful beekeeper with good results, but with damaging effect to all when depended on by the careless few. Perhaps Alberta has found out through instances of the latter—hence the reluctance to use the method (page 336).

A good swarm-control method is never "out of date" (page 341). Demareeing is a workable method in many cases. It does bring the bees into the supers and if queens are good, it results in enormous worker forces. Mr. Braun adds to the method by his use of an acid board to drive the bees into the new brood chamber. It should save a lot of time otherwise spent in queen hunting—in fact, is one of those things that makes one say "why didn't I think of that!"

Where ants are bad the use of DDT as suggested by Percy Wright should help considerably (page 342). Lacking old supers or hive stands, one could even raise the hive up on blocks, etc., and spray under it.

The quotations from Geo. Demuth's bulletin on "Swarm Control" do pretty completely cover the field as far as causes of swarming are concerned. Inherited characteristics, the hive unit as a whole, and the distribution of bees within it, are the factors influencing the swarm desire. Once most of the bees have taken up super work in earnest, swarming is about over except for occasional supersedure cases (assuming the strain of bees is not excessively inclined to swarm). To bring about this—and other points in prevention — the remedies follow logically after one understands the causes. The article is well worth filing for frequent reference (page 344).

Seasons do move fast, Propolis Pete. And you surely are right about the necessity for reducing the time spent per hive when we first began beekeeping (page 346). I used to LOVE to take that half hour per colony you speak of—yes, and more. I still sometimes sigh for those "good days" when there was no pressure of always a yard or two where something should be done **soon.**

A colony by itself will nearly always be gentler than the same one in a yard of bees. Its guards are not in that fighting mood induced by constant watch against robber bees and other enemies that seem to congregate where many hives are in one place. I often find the first third or half of a yard very easy to work but a veil necessary toward the end (page 348). And Editor Deyell's mention of putting on supers in advance is well worth keeping in mind. It does help.

A Talk to Beginners

By M. J. Deyell

Will We or Won't We Get a Crop?

As this is being written, June 13, no surplus honey has been stored in the vicinity of Medina. In fact, bees are making a scant living and some colonies are short on stores. I helped to feed some colonies yesterday where stores had dwindled almost to the vanishing point. In times past I have seen a few populous colonies starve in June during a spell of cool weather when all of the honey in the hives was used up. It is a sad sight to see a large cluster of bees—dead—with their heads in the empty cells. There really is no plausible excuse for such a loss of bees, but human nature being what it is—none of us is infallible.

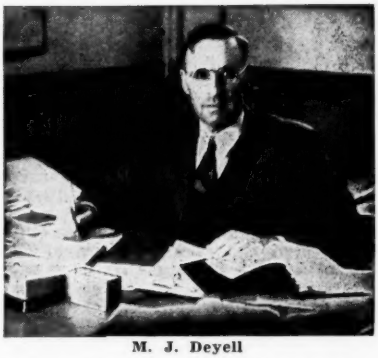
Yesterday I talked to a commercial beekeeper from western Ohio whose bees are in a condition similar to ours and he was wondering what is going to happen during the next few weeks. We have had cool dry weather lately. We need rain and humid weather. We may get it.

This beekeeper with whom I talked, said that the uncertainty of securing a crop is what makes beekeeping so interesting and worth while, and I agree with him. And I have noticed during the years that one day we can feel depressed, "down in the dumps", about beekeeping and the next day the sun shines, the honey flow starts and we are away up on the mountain top. Such is life.

While looking back through an April, 1933, volume of Gleanings I ran onto the following from the late J. L. Byer, Markham, Ontario, who contributed for many years to our N.E.W.S. department: "In our business one never despairs of a crop of honey until the last blossom has died, nor is he ever sure of a crop, no matter what the prospects, until the supers on the hives are filled." How true!

Taking Off the Honey

Most beekeepers are anxious to taste the new crop of honey. There is a tendency to remove combs or supers before the honey is properly ripened. Honey taken off too soon is apt to ferment because of the high moisture content. Extracting combs should not be removed until they are at least three-quarters capped over, and even then the honey may not be thoroughly ripened during rainy weather. Comb honey should not be taken off until sections are entirely capped over.



M. J. Deyell

A bee escape may be used to remove supers of honey from hives. This is a small device which fits into the opening in the center of the inner cover after the center block is removed. The bees enter a small hole in the middle of the bee escape, then travel down between two pliable springs. They are unable to return through the small springs which close as they pass through. If a bee escape is put under one or more supers in the afternoon, bees are likely to be out of the supers the following afternoon. The supers can then be carried into the honey house. This method of removing surplus honey avoids stirring up the bees.

Don't Let Bees Steal Honey

When you place a bee-escape board under a super of honey that is ready to be removed, be sure to examine the super above the escape board to make sure there are no small holes through which bees can pass. If there are, the bees will be sure to find them, especially if there is a dearth of nectar. If the super is left on long enough the bees will steal all of the honey out of the super and this will tend to get bees into an uproar.

Equipment for Extracting Honey

A small two or three frame honey extractor is large enough for the beekeeper with from one to 20 colonies. A small motor attachment

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saves much labor of turning the crank by hand.

The room in which the extracting is to be done should have windows screened to keep out bees. The extractor should be anchored down securely to the floor to prevent its rocking while in motion.

Combs of the approximate same weight should be selected so that the machine may not be thrown out of balance. After combs are uncapped with a hot knife they are placed in the baskets of the extractor. A part of the honey should be thrown out of one side of the combs, which requires only a few revolutions, then the combs are reversed and all of the honey is thrown out of the opposite side. The combs should then be reversed again and all the honey thrown out of the first side. This procedure avoids placing too much strain on the midrib of the comb and results in a minimum of comb breakage.

How to Strain the Honey

The commercial beekeeper with a large extractor will use a honey pump for pumping the honey from the extractor into the tank. The small beekeeper with a hand machine may run the honey from the extractor into a pail, then empty the honey into a small honey tank covered with two thicknesses of fine cheesecloth for straining the honey. This cheesecloth may be fastened over the top of the tank by means of a wire tightened with pliers, or a support for holding the strainer cloth may be used.

During hot weather, honey direct from the extractor will strain through two thicknesses of cheesecloth quite readily. If the weather is cool it may be necessary to heat the honey before straining. To do this the honey should run into 60-pound cans from the extractor, then heated in a wash boiler with water surrounding the cans which should rest on two small wooden sticks so the water may circulate under the bottoms of the cans. Do not allow the temperature of the honey to go over 160°F. and then only for a short time. Overheating tends to destroy the delicate flavor of the honey.

Selling Honey Locally

If you wish to dispose of your honey to customers in your neighborhood, erect a honey sign and place a small ad in your local paper announcing your street and number,

This honey sign belongs to J. L. Maul, of Hamlet, N. C.

and the price you ask for your honey. Be sure the honey is well strained and that the containers are clean, having attractive labels.

Roadside Honey Stands

Some beekeepers are logically located for selling honey at the roadside. There should be space for erecting a fairly large honey sign at the stand where the honey is to be sold. There should be at least one approach sign on either side of the stand, perhaps one-half mile away. The merchant in a town or city picks a good site for his stores where many people pass. The roadside honey seller must also be located on a well traveled road, a corner, intersection, or bend in the road near a gas station, if possible, where cars have to slow down, which are good places for honey selling stands. A dwelling house where honey is to be sold should be kept up and look spic and span. It is an advantage also to have sufficient space at the side of the road for parking.

In order to build up an increasing volume of honey sales, a high standard of quality must be maintained. The color and flavor of the honey should be kept uniform so far as this is possible. Because of different seasons, weather conditions and bee pastures from year to year, it is indeed difficult to have honey which is always uniform in flavor and color.

Giving the Customer a Taste

This is important. Quite often a taste of honey makes a sale and a steady customer. Clean sample

sticks should be kept in a clean white pasteboard box with a dust-proof cover. The sample jar should at all times look clean and appetizing. It is an advantage to have some wafers to serve with the honey sample. In case there are customers who doubt the purity of the honey, it is an advantage to have them taste and try before they buy. A roadside should keep an attendant well versed in honey — how produced, its food value, etc. He should be posted with information concerning bees.

Watching the Balloon in the Jar

In order to captivate the interest of those who do not know the virtues of honey, there is a little trick that can be worked to hold the attention of the customer long enough for the salesman to tell the story of honey. Tip a glass jar of honey upside down. The air bubble will travel upward. This bubble has the appearance of a balloon. Simply tell the customer that you put a balloon in each jar for the children to play with.

I remember stopping at a well-known honey stand in western Ohio, owned by the late George Mapus. A customer drove up to the stand and purchased some comb honey and vegetables. I picked up a 2-lb. jar of honey, tipped it up and called attention to the balloon and soon had the interest of the customer. He said he had never noticed the balloon before. The result was that he bought a jar of honey. Mr. Mapus said afterward, "Jack, I knew what you were up to when you tipped that jar upside down".

Importance of Requeening

July and August are good months for requeening. Young laying queens introduced at this time have an opportunity to produce a considerable amount of brood during the late summer and fall and such colonies are likely to winter well. These young queens will then be in their prime the following season.

Don't Leave Queen Cages in the Sun

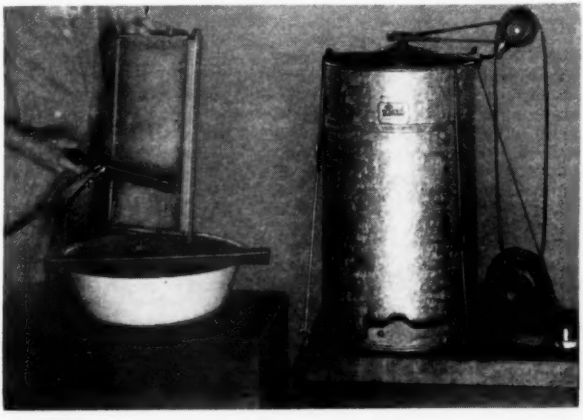
Some beginners have made the mistake of placing queen cages on top of a hive, with the screens of the cages facing up. On a hot day the rays of the sun shining down on the screens will kill the queens. Workers can stand more sun than queens. If you have occasion to lay a queen cage down on a hive, be sure to put the screen side down.

Don't Get Bees Stirred Up

Some beginners, in fact, some experienced beekeepers make the mistake of manipulating hives too early in the day or too late in the evening while most of the bees are at home. This tends to stir up the bees and they sting those near by.

Reserve Ample Winter Stores

Beekeepers should not remove all of the honey from their hives. The late summer and early fall is a good time to start preparing colonies for winter. The first essential for successful wintering is an ample amount of stores in each hive. Most beekeepers use the food chamber hive which is a two-story hive with the upper story well filled with honey, also some honey in the lower story. Such colonies, if they have young, prolific queens, are likely to be very populous for winter.



A small power extractor will handle quite a considerable amount of honey.

Editorials

Comb Honey Outlived Destructive Rumors

Some years ago the ripe olive industry was threatened by a wild story about a family that had eaten ripe olives and then all got sick. Newspapers picked up the yarn and it got exaggerated until rumor had it that the whole family died. For all we know, the cat and dog died too, and maybe the chickens and the canary. The story was told and re-told until the industry was actually threatened. Whether any doctor ever blamed ripe olives we seriously doubt. Anyway, it took years to convince people that they would not surely get something if they ate ripe olives.

In the middle 80's when section comb honey was quite a sizable proportion of the total amount of honey production in the United States, a slight cloud appeared in the comb honey horizon, scarcely larger than a man's hand, but the cloud increased in size and darkened in color until a storm threatened the fair day of the growing honey industry. The cloud appearing in the sky was an ugly rumor.

There was no reflection on the healthfulness of comb honey. No one got sick eating it, but the story got around that it was not produced by bees at all, but by ingenious Yankees who stamped out the cells in paraffin and filled them up with peppermint-flavored syrup. How they capped them over no one seemed to understand. Strangely enough the rumor started with a scientific pleasantry by Dr. Harvey M. Wiley. Referring to "wooden nutmegs", he added that he supposed Yankee ingenuity was clever enough to produce artificial hen's eggs, strawberries, and comb honey. Why no one believed that the eggs and strawberries were made by machinery was one of the modern mysteries. History shows that almost everyone believed that comb honey was no longer genuine. The statement was passed on by Dr. Emma Walker, a writer for a national woman's magazine. This was like bringing on fresh moisture-laden clouds. An encyclopedia picked up the yarn and printed it as a fact.

A. I. Root, the first editor and publisher of Gleanings began denying the rumors, first patiently and finally militantly. At long last he decided on a bold move. He had thousands of cards printed as follows:

$1000 REWARD!

To the person who will furnish evidence that **Comb Honey** has been **Manufactured**, filled with honey, and capped by **Machinery**, or who will furnish information of any place where **Comb Honey** is manufactured by machinery—in either case the product imitated so closely as not to be told from the genuine.

—TO WHOM IT MAY CONCERN—

In view of the false and damaging statements to the honey-business, in regard to making comb honey by machinery, etc., I have thought best to silence all such falsehoods as they come up, by the following offer: I will pay $1000 in cash to any person who will tell me where comb honey is manufactured (i.e., filled and capped over) by machinery; or I will pay the same sum to any one who will find machine- manufactured comb honey on the markets, for sale—the bogus article in both cases to be so perfect as not to be readily detected from the genuine. I am as safe in making this offer as I should be if it were strawberries or hens' eggs. It never has been done, and it never will be done. If you wish to know whether I am responsible for the above amount or not, go to any bank and ask them to quote my standing in Dun's or Bradstreet's Commercial Agency, or write to the First National Bank of Medina.

A. I. ROOT, Editor of Gleanings in Bee Culture, MEDINA, OHIO

April 19, 1889

Sample copy free on application.

These he sent out right and left. One "doubting Thomas" actually came to Medina with the story that he knew the proprietor of a factory where artificial comb honey was being manufactured. Mr. Root promised to furnish the thousand dollars if the man complied with the conditions printed. Full of excitement he departed,—never to be heard from again. Perhaps the manufacture of comb foundation, the midrib or pattern on which the bees build their comb, gave some ground for the rumor.

Sixty-three years have come and gone since this card was printed. Dr. Wiley had long since denied the truth of the story, explaining that it was a pleasantry only, but the denial seemed to do no good. The reward cards quieted the storm. Dr. Walker, not too happily, apologized for the error. The encyclopedia took out the offending statement.

Truth may be stranger than fic-

tion but fiction is often more easily believed. Remember the time a misguided bee journal publisher allowed a correspondent to suggest that perhaps foul brood in bees was the same as typhoid fever in human beings? Ridiculous, of course, but many believed it. However, that is another story.

Comb honey outlived the destructive rumors. Perhaps the repeated denials and the thousands of true stories printed, helped comb honey producers of about 50 years ago to dispose of sixty to eighty million pounds of comb honey yearly. It would be a very good thing today for the entire honey industry if more comb honey were produced and sold. It has never been imitated—there has never been anything like it. It proclaims its own purity as far as the eye can see. There is no more beautiful food container anywhere than that which the bees have fashioned, a container that weighs only about half an ounce but holds about 25 times its own weight in honey. Comb honey always has been, is now, and always will be, the best possible advertisement for all honey. At least part of the difficulty that the honey industry has encountered in late years is the absence in so many markets of comb honey. Comb honey has never had a competitor.

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Screened Trucks for Moving Bees During the years we have had many experiences moving bees short and long distances by wagon, truck, railway live stock cars, river boats, and iced railway merchandise cars. Moving bees is a hard job.

A number of beekeepers who practice migratory beekeeping—especially in the West—use large trucks, leaving hive entrances open. Hives are loaded late in the evening and moved during the night, arriving at destination, if possible early the following morning. In some instances when loads of bees are held up during the day, because of accident or truck failure, bees do leave the hives and cause considerable annoyance and, in some cases, trouble.

Some are now using screened trucks to hold the colonies with open entrances. This seems to be the safer method, since if it is necessary to stop during the day the bees that may leave the hives cannot fly from the truck.

Honey Weather Favorable weather during the time bees store or are supposed to store a crop of honey is very essential for success in securing a maximum crop. We may have good bees, good equipment, and apply intelligent apiary management but if we do not have favorable weather for nectar secretion and bee flight, we cannot hope for a good crop.

It is essential, however, that beekeepers be in readiness to secure a crop if and when it comes. If we are not prepared for a crop when it is available it is lost. Sometimes when prospects for a crop look none too promising, improved weather conditions will result in a crop of honey. Obviously there must be honey plants to furnish nectar. However, good honey weather is very essential for a crop.

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Why So Many Drones? Some years ago while producing honey commercially in the raspberry region of northern Michigan, we became acquainted with a beekeeper who used half sheets instead of full sheets of comb foundation in his brood frames. He was economizing — so he thought. He kept 80 colonies in one yard and when we visited him during the honey flow, thousands of drones could be seen when his hives were opened. In fact, they could be heard flying through the air. The lower halves of these brood combs were practically solid drone cells.

While it seems advisable to use full sheets of worker comb foundation, this does not insure all worker comb or worker bees. The bees will construct some drone cells wherever possible. In some instances, they will change a portion of the mid-rib, or septum, of a comb from worker to drone cells.

The late Mel Pritchard, veteran queen breeder for the A. I. Root Company for about 40 years, once said that if he were operating bees for honey production he would have one drone comb in the brood chamber of each hive so that the queen could use this comb for laying unfertile eggs. This, in his opinion, would obviate the necessity of bees building drone cells in corners of combs or changing the mid-rib of combs from worker to drone cells. Perhaps Pritchard was right.

If it is desirable to secure a good

drone comb to try out this theory, simply place an empty frame (preferably one from which a poor comb has been cut) near the middle of a brood chamber during a good honey flow. The bees are likely to fill the frame with drone comb, and the comb will be straight.

But we haven't yet answered the query as to why so many drones. Apparently one reason is that an abundance of drones helps to insure the perpetuity of the race. Also, drones in abundance during the mating season makes it possible for the drone that is the strongest and swiftest in flight to mate with the virgin queen in the air on the wing and thus the law of "the survival of the fittest" is in operation.

Even though a normal drone population seems essential, an uncalled-for number of drones is unnecessary and uneconomical, for drones do consume considerable food which would otherwise be used as stores for worker bees or as surplus.

Some of the southern queen breeders have at times during the later part of the season experienced a scarcity of drones in their queen-mating yards and it has been necessary in a few instances to import some drones from other sections of the country where they were available.

Even though the drone has no father but does have a grandfather on his mother's side, and even though he is pushed out in the cold late in the season to die, he does play an important part in the hive and the beekeeping industry.

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Colony Morale When we examine beekeeping literature we find comparatively few references to colony morale. However, much has been written on bee behavior which is related to the morale of a colony. It is difficult to put into words just what "colony morale" is.

In the human realm, we sometimes refer to the morale of a family, town, or community as being good or perhaps poor. Just what do we mean by morale? One definition Webster gives is: "Morality; moral principles, teachings, or conduct." As a matter of fact, it may be far fetched to use the word "morale" in connection with honeybee behavior. However, the last word. "conduct", in the foregoing definition, appears to warrant our doing so. Morale in a hive of bees has to do with the behavior or conduct of the colony.

It seems obvious then that in order to maintain good colony morale, we should make a more comprehensive study of bee behavior. We know from experience that some colonies go through a season without attempting to swarm, while others apparently swarm, or try to, on the slightest provocation. The reason for this difference may not be well understood, especially when all colonies in the apiary have been given practically the same management.

Some strains and races of bees seem to have pronounced swarming propensities. Some beekeepers think that it is possible to produce a strain of bees that is non-swarming. If there is such a strain, we have not yet seen it.

Colonies that are making preparations for swarming do not store surplus honey with normal vigor. Their working morale is weakened, so far as honey gathering is concerned. They are intent on swarming. They apparently cannot and do not make preparations for swarming, and at the same time store honey normally.

It seems desirable, therefore, when attempting to encourage a colony to store the maximum crop of honey, to manipulate the colony in such a manner as to make it as easy as possible for the bees to store the maximum crop. This can be done by supplying comb space when needed, or a little in advance of the time the space is actually needed. When the bees have ample comb space, they are not likely to feel crowded or congested. It seems to be the general consensus that congestion within the hive is the prime cause of swarming.

Colonies headed with old queens are likely to swarm sooner than colonies with young queens. Replacing old worn-out queens with young vigorous queens from a strain of bees superior in honey-gathering qualities helps to maintain good colony morale. When we know more about bee behavior or colony morale, and when we better understand just how and when to perform certain hive manipulations throughout the season, we will secure larger crops than at present. An understanding of how to maintain good colony morale is essential for maximum success in beekeeping.

From North, East, West, and South

SOUTHERN CALIFORNIA, June 3

Weather: Most of the month of May was clear and fairly warm—in fact, very delightful weather for real comfort. Frequently we have a lot of foggy days with cold winds. But this year the weather was quite exceptional as seen from the beekeeper's point of view. May, being the principal month for the orange honey flow, the type of weather may mean a good crop or it may mean a below-average crop. Last month's weather was quite ideal for honey production.

Condition of Plants: Having had no specially hot weather and practically no dry winds, most plants are still in excellent condition, and should continue to produce nectar for several weeks. The white sages look fine and should yield a fair amount of honey a little later.

Condition of Bees: Generally speaking, the bees have been in excellent condition this season. There were an unusual number of swarms and of course the loss of bees from the hives made some colonies rather weak. But there seemed to be a quick build-up afterward caused probably by the excellent flow of nectar early in the season. Many of the swarms which were hived built up enough strength that they were able to gather some surplus honey.

Market: At the present time the honey market is rather quiet. Buyers don't seem to be too anxious to stock up but the producers are optimistic and expect to get from 11 to 12 cents per pound for their honey.

Honey Crop: The orange honey crop has been made and most of it off the hives. Beekeepers are as busy as they can be with the extracting. One of the biggest crops of orange honey ever known will be harvested this year. Some colonies will yield as much as 100 pounds and the average per colony will probably run pretty well toward 75 pounds.

The black sages also yielded very well this year and some good honey was made from that source.

Miscellaneous: Already the beekeepers who move to the alfalfa are getting their bees ready for the move. In fact, some of them have sent a few loads to the new locations. Producers are anxious to get their apiaries away from the orange districts as soon as possible. The special reason for this is that the citrus growers are wanting to spray their trees with parathion to get rid of various bugs. The parathion also gets rid of the bees if they are in the region where it is used. This causes a lot of concern to the beekeepers. However, the citrus growers are very cooperative in most cases and no ill feeling exists.—L. L. Andrews, Corona, Calif.

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NORTHERN CALIFORNIA, June 2

Weather: May was a dry month, only 0.09 inch of rain being recorded in this area. The total to date is 20.44 which is 3.69 inches above normal. Warm rains in the mountains could have caused disastrous floods, but the slowly melting snow did not cause the floods that had been predicted. Considerable work had to be done to bolster the banks of the different rivers which carry off the flood waters in the San Joaquin and central valleys, and breaks have resulted in several thousand acres being flooded. One or two heavy rains would have caused great damage, and the danger is not over.

Condition of Colonies: Most colonies in northern California are in a flourishing condition unless they were held back by a shortage of stores or by poor queens. Weather and floral factors, and particularly the cool weather, did not permit the colonies to gather surplus. Our scale colony lost weight until May 24 and since then has been gaining slowly. Divides made eight weeks ago with four frames of brood and bees are now requiring a second story. Many divisions have partially emptied a shallow super of hon-

ey but during the last few days have replaced some of it with new honey produced from thistle, morning glory, and various other sources. These divides are in prime condition for the pollination of alfalfa and other clovers which are coming into bloom, and this type of management is being used to prevent swarming and to increase the number of colonies for pollination purposes, where the colonies are not shaken for package bees. Sometimes these divides are made on the parent colony by raising the second story above a solid division board, or a double screen, and inserting a ripe queen cell a day or two later. The queen is left in the lower story, which is given a second story of combs at the time the division is made. An entrance to the rear for the upper colony makes a snug two-in-one hive that can be handled as separate units for six weeks, or until both colonies require more room. Some of our honey producers unite the two units at the beginning of the alfalfa flow and thus have a high producing colony with a large reserve of brood, at the same time effecting the requeening of the parent colony. When the hives have to be moved, the two units are generally divided and provided with supers of combs in their new location. The colonies can be run as two-queen units, but this system is not suitable for migratory beekeeping, or for quick moving from the dangers of pesticides. (A few years ago, south of Sacramento, united colonies produced 340 pounds of honey as against 180 pounds for normal colonies.) Several beekeepers are using hoists attached to their trucks for loading colonies and heavy supers of honey. This takes the backache out of beekeeping.

Pollination Problems: Beekeepers are banding together in cooperatives for the purpose of solving many of the problems connected with pollination service. One manager and agent for a group reduces confusion for the growers and beekeepers alike. In one area, a group is now actively engaged in moving 45,000 colonies on 15,000 acres of alfalfa and will have the task completed in approximately two weeks. Similar decals on a majority of the trucks gives the group a greater semblance of business than where no decals are used. Some of this group are trying out a new loading device, of which we all may hear more in the future.

New pesticides are giving both growers and beekeepers considerable concern and only experience with them during the coming season will provide the needed answers. Fortunately, California has an efficient registration law that prevents the sale or use of pesticides until certain safeguards have been set up against injury to man, domestic animals, and plants. Growers of farm crops are becoming increasingly aware of the need of adequate regulations concerning the use of pesticides so that the chemicals will be confined to the crops treated and applied at such times as to be the least injurious to beneficial insects. The wide choice in chemicals makes it possible for the farmer to select those which are least toxic to man, plants, and beneficial insects and yet which will be effective killers of destructive pests. Efficiency and timeliness of application are generally as important as the chemicals used.

Some growers have expressed the opinion that the role of the honey bee in seed production has been over-emphasized, calling attention to the fact that some 14 or more factors are involved in seed production. Numerous factors are involved, the neglect of any one of which may reduce the seed crop materially. The fact remains, however, that without adequate pollination, the other factors will not produce an economic amount of seed. Some areas are fortunate in still having an appreciable number of solitary bees, but most areas cannot depend on either the number or emergence dates of the solitary bees to properly pollinate their legumes. In areas where legumes are grown in large acreages, and where thousands of colonies are concentrated for pollination services, it is possible that no more than two or three colonies need be used to secure an economic yield of alfalfa seed. If maximum production is desired, then more colonies or a different system of management may have to be employed.

The Honey Market: Honey prices have been advanced recently by many handlers in order to take care of the increased costs. One handler

reported a drop in sales with the increase in price. This seems to be a natural routine with most articles but is usually of short duration. Increased advertising is generally used to create new buying activity whenever prices change and this should work with honey as with other food commodities. Honey is being displayed more on top shelves, where it can be seen and appreciated, an indication of the better merchandising methods that are being used by the more aggressive handlers. They need the cooperation of the producer, and the California Marketing Order, as well as the marketing orders in other states, should give this aid. The American Honey Institute and the American Beekeeping Federation can stimulate such efforts and aid in the marketing of honey in numerous ways if given the needed support by the industry.—J. E. Eckert, University of California, Davis, California.

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OREGON, May 27

The weather in this area has been normal and bees wintered exceptionally well. The colonies started to build up rapidly but in some areas the bees have dwindled in number. This is unfortunate because the hairy vetch, which is our major honey flow, is now just starting to bloom and many colonies are not up to their full strength. The vetch looks good and if we have the bees and the weather is satisfactory we should have a good honey crop.

Many colonies have been moved into the orchards and the growers have been using 10 percent D.D.T. so the colonies have been weakened. It is also claimed the beekeepers who moved into the Madras territory have suffered a heavy loss from poison spray. It appears the spray poison was stored with the pollen and the brood died when fed this pollen. Swarming has been excessive and swarms captured here in Portland have been as a rule very large.

The supply of honey now in the hands of producers is the lowest in the last five or six years. Today, May 27th, at one of our chain stores the 5-lb. pail was selling for 97 cents, the 1½-lb. jar for 48 cents, the 1-lb. jar for 31 cents and the 1-lb. carton of honey spread for 30 cents.

Miscellaneous: The Oregon State College has made a very careful survey of the cost of producing honey and their finding is 17 cents per pound. Assuming this is correct, I fail to understand how the beekeeper can stay in business when the chain stores are selling the honey at the above prices. The sale of bee supplies is much lower here than last year.

At one of our recent beekeepers' meetings a moving picture film was shown of the research work done by Karl von Frisch. This picture shows how bees communicate with each other when a new source of nectar is found by doing the wagging dance. Food, in the form of sugar and water, was placed in different directions and distances from the hive. The bees visiting these places were marked with white paint and were then observed when entering the hive. The marked bees could plainly be seen on the combs and their movements explained in diagrams shown on the screen. One of our members said he would like to see the picture again. It would be well if other beekeepers would procure this film for one of their meetings.—John T. Erickson, Portland, Oregon.

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COLORADO, June 2

Weather: The weather this spring has been on the cool, cloudy, side with moisture fall above normal, at least in and along the mountains. In May, Denver received rain nine days straight. At this date it is still cloudy but the temperature is increasing as the season progresses. I believe moisture will be adequate until well into the summer.

Condition of Bees: Winter loss was above average because of winter conditions which were worse than usual. Quite a percentage of the colonies that survived were slow to build up with many still below par. Adverse weather this spring was probably one of the causes.

Plant Prospects: Dandelion has been abundant in those sections which normally have dandelion. In some places bees have stored from one-half to a full-depth super of dandelion honey. It is a little early to tell how the main flow will be. I would guess that due to the dry condition last summer that sweet clover will be scarce. Some sections will have considerable Hubam. Alfalfa will be about normal. As for other sources of nectar, only time will tell.—Albert L. Crouse, State Apiary Inspector, Denver, Colo.

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MONTANA, May 31

Weather: This spring has been good for growing crops. For a short time it was rather dry and some irrigation took place, but since then we have had plenty of alternate rain and hot days. We have not had any killing frosts for quite some time, but we did receive a statewide snowstorm about the middle of May. This snow did no damage except to break limbs off trees and disrupt power service. There is still considerable run-off to take place from the snow which collected over the winter and it looks as though there will be plenty of water available for irrigation this summer.

Condition of Bees: Over the state as a whole the bees are in excellent shape for this time of year. Here at home the bees have made considerable honey off of dandelions, balsamroot, and other early plants and have worked the apples and other fruits considerably, but practically all the honey will be used up before the bees enter the main honey flow in June. Winter losses were not as heavy this year and most of the bees came through considerably stronger than usual. Very little American foulbrood has been observed so far this year. All in all, the bees look as though they are ready to make a record honey crop if the weatherman will cooperate a little.

Market: Practically all the honey in Montana was contracted for last fall, but there is still some left to be packed out yet. We have not had many calls for honey lately, but we think that people will be coming around soon looking for fresh honey.

Miscellaneous: Due to the extra amount of rainfall received this spring, there seems to be an increase in the number and types of plants present. Our State flower, the bitterroot, is just starting to bloom around some of our beeyards.

Our state bee inspector has indicated that a rather thorough inspection of bees throughout the state is going to take place this summer. He has completed his preliminary survey and plans on starting actual field work immediately.

Hired help is somewhat hard to find, but some laborers have been imported from Mexico which may ease the situation a little.—Parson Pile, Corvallis, Montana.

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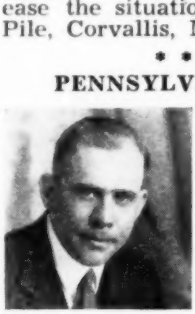
PENNSYLVANIA, June 7



Conditions: Pennsylvania winter losses were almost nothing being about as low as for any year I can remember. Mild weather for most of January was an important factor in this small winter loss as was also the heavy honey flow in 1951 which left the bees with plenty of food for winter.

The spring of 1952 has been wet and fairly cold which retarded colony development. The bees in general built up somewhat late but even so many were in good strength for the spring honey flow. Swarming became general but not excessive in May instead of April which happens during an occasional early season.

There has been a good honey flow in southern Pennsylvania from fruit, dandelion, and locust with the clover flow starting fairly heavy during the early part of June. In the northern part of the state, the flow has been light and spotted with the weather too cold for best results. The last week has been dry and hot which is more favorable. The abundance of moisture in the soil is favorable for a clover flow. Unfavorable weather during the rest of June and July can, however, be a limiting factor to prevent a clover honey flow, as occasionally happens.

The inspection service is getting under way early this spring with a

sizeable crew of inspectors. Through the work of this service, the percent of A.F.B. in this state has been reduced considerably during the past ten years. A.F.B. no longer causes the heavy losses of colonies that it did some years back and beekeepers no longer fear this disease as they did when I first started beekeeping about 1915.

The honey markets have been good during the past few months with the result that most of last year's large crop has been sold. This condition is favorable for the beginning of a new harvest which begins shortly. With the local market in this condition, our beekeepers find it difficult to understand why the price of honey, five-pound jars in particular, continues to drop. These reduced prices generally appear first in the chain stores on honey shipped into the state from the west. It is hoped that the recent increase in wholesale prices will soon be reflected in retail prices.— Edwin J. Anderson, State College, Pa.

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TEXAS, June 7

Weather: Rainfall during May for most sections of Texas was above normal occurring during the latter part of the month. Drouth which had persisted for two years has been broken. With a steady build-up of soil moisture, pastures and field crops are greatly improved. In some sections where irrigation water had long been exhausted the supply has been replenished and farming operations will soon be back to normal.

Bees and Plants: While vegetation in general is greatly improved, many trees and shrubs of value to bees perished from the drouth which had persisted so long. In areas where spring build-up of colonies was favorable, swarming was quite a problem. Parent colonies, hived swarms, and spring increase have since built up well; however, there was considerable loss and failure of queens. Throughout most of the blackland area and in east and central Texas where spring rainfall was adequate, wild flowers bloomed in great profusion. Supplies of pollen and nectar were plentiful and considerable spring honey has been gathered. Marigold (Gaillardia) yielded well in the blackland and at present there is a good flow from horsemint in most of its range. None of these constitute good grades of table honey and beekeepers will extract the early honey to clear the supers for better grades of table honey from sweet clover and cotton. Limited small areas in south Texas reported some surplus from guajillo, mesquite, and catsclaw, but for most of south Texas there has been no flow of any consequence. The vetch flow was generally disappointing. In Kaufman and adjacent counties where vetch earlier looked promising, at least 15,000 colonies of bees had been moved in for the flow. With heavy outbreak of aphids, growers resorted to applications of parathion to save the vines. Colonies were losing their field forces and beekeepers were forced to move their apiaries promptly before any appreciable surplus honey was stored. Beekeepers feel little inclined to return to the vetch area in the future unless they receive some remuneration and due notice to permit removal of the bees in case of insecticide applications. Bees have been working sweet clover but in most areas the main bloom has not yet occurred. As a whole, there is as yet no definite indication of the trend of the current year's honey crop.

Miscellaneous: Much of the early surplus honey now on the hives is of such quality which will not find a ready market and therefore will remain in the producers' hands as feeding honey. Since the fall flow is often unreliable, a good supply of this early honey will provide winter stores and reserves needed for spring build-up. Older beekeepers will remember that European foulbrood was not known to occur in Texas prior to World War I. The first case of EFB was reported from Dallas County in 1924. While this brood disease is only a minor problem in our State, it has been found in several counties during the last five years. Bee paralysis has occurred over a wide area during the past four years and because of its prevalence may well be regarded with some concern. In addition to the common virus form, a bacterial form of the malady is known to oc-

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cur. Colonies may remain infected for many months and while colonies are rarely killed outright, they usually remain non-productive for the year and liable to loss from robbing or starvation.—A. H. Alex, Texas.

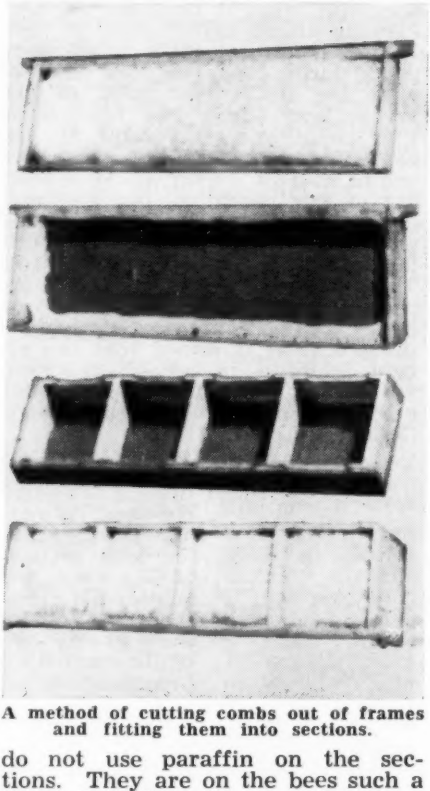
How I Solved the Section Comb Honey Problem

By Paul W. Johnson, Peru, Indiana

In an effort to supply their customers with section comb honey, beekeepers are aware of the fact that the profits are very uncertain. One of the main reasons for this, of course, is the decline in bee pasture. I have produced section comb honey for a certain percent of my customers for a good many years, and know something about the ups and downs of the business, such as poor seasons, cull sections, swarming, and so forth.

I am one of those fellows who is always making improvements and trying new methods. Now I am producing comb honey in sections without having any culls. Swarming is kept at a minimum, with very little cleaning of sections, and no foundation to fasten in the sections. You need not have the supers ready until the flow is well under way. Any season that you can produce comb honey in half frames you can produce in sections.

I produced a super of clover section comb honey in the fall, although the bees were working on heartsease at the time. My method is to let the bees produce my comb honey in the 5⅜-inch depth, half frames, using nine frames to the super. We use as light a foundation as possible, and we wax it in. As soon as the bees get a super finished, you are ready to start producing section honey. Remove the frames of honey from the bees while the cappings are nice and white. Any frames not finished are set back on the bees. Lay the frame of honey on its side, with your section box on top. Take a sharp knife and cut out a square of honey to fit the section, using the section box as a guide for your knife. Cut out four squares, then lift the empty frame and spread the cakes apart. Slip the sections down over the square of honey (they must fit tight). The next step is to assemble them in the section super. You need not use separators between, but may if you wish. Set the super on any average colony and leave about 48 hours. You will be surprised how quickly they dry and fasten the comb in sections. We use only beeway sections. We do not use paraffin on the sections. They are on the bees such a short time that they require very little if any cleaning.



A method of cutting combs out of frames and fitting them into sections.

It is no longer a question of how much section comb honey your bees will make, for under this method they will make whatever amount you prepare for them. This is precisely what you will get, too, for there are no culls. You can produce section honey any time during the season. I might add that we do the cutting on a rack covered with ¼-inch hardware cloth with a drip pan underneath. The wet frames are then placed on the bees for drying. We use only honey that is fully capped.

Results: Full weight sections 12 to 16 ounces; no culls; no foundation in sections; no split sections; very little cleaning of sections; no paraffin on sections; more sections per

colony; swarming reduced to a minimum; a much longer season to produce section honey.

While I do not expect to take any prizes at the State Fair with sections, I'll tell you right now they are very nice. My customers are well pleased, for I am now able to furnish them with plenty of section honey.

Unorthodox Two-Queen Colonies

By Marion W. Kosanke, Ripon, Wisc.

Much has been written and said about two-queen colonies. Authorities have proved their advantage in honey production and many progressive beekeepers have put this theory to good use.

But sometimes we have not realized that we have a considerable number of two-queen colonies of the unorthodox type, namely, mother and daughter queens in our apiaries.

During the past it has been my opportunity to observe a number of these colonies. And this past season it was my privilege once more to do so again.

In the early part of May when I was clipping queens I found two colonies in my apiary that contained mother and daughter queens. Both of the old queens were active so I did not remove them. When I made my next inspection in ten days and every inspection thereafter, I made it a special point to locate them and observe their action. Upon every inspection throughout the months of May, June, and until the 20th day of July, both of the mother queens were observed in the hives. After the 20th of July I dispensed with all inspections and made no further attempt to locate the two old queens. During this entire time both of the mother queens apparently were laying well along with the daughter queens. Just before the honey flow one colony contained 18 frames with brood and the second one contained 23 frames with brood.

The colony with 23 frames of brood consisted of four hive bodies that were used as brood chambers. When the honey flow began one hive body containing brood, bees, etc., was placed on another stand as increase. A few days later it was given a young queen. Then the colony was given three comb-honey supers on top of two brood chambers that contained the two queens. The remaining brood chamber was placed on top of the comb-honey supers until all of the brood had emerged and then it was removed. This colony made no attempt to swarm throughout the season and seemed quite content with their two queens. The second colony containing mother and daughter queens were also given comb-honey supers in the same manner but no attempt was made to make increase from it.

These two colonies produced a good crop considering that the season was a poor one for comb honey production. The enormous population of bees in the two colonies and that I was able to make proper manipulations to discourage swarming were the two main factors which made this possible.

I am inclined to believe that many of our populous colonies contain two queens at one time or another but we are not conscious of the fact. When we are inspecting our colonies in the spring to locate queens, we do not look any further in the hive after we have found a queen. We take it for granted this is the queen that heads the colony and move on to the next one. This is a very natural conclusion and has been my own on many occasions. But sometimes when I have been curious about a colony with an unusually large amount of brood and bees I found this situation of mother and daughter queens existing in a number of instances. It is another of the many phases of beekeeping.

Four hive bodies containing 23 combs of brood.

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

Once again it is that time of year when fair displays nose all other thoughts out of our minds. The question always is, "How do I make my display more eye-catching than the others?"

That's a tricky problem to solve. Yet solve it you must if your honey booth is to draw attention.

Remember a few simple rules in setting up your booth. Be faithful to them; let these rules work out small details for you.

1. **Keep display simple.** This is the cardinal rule of display art. Do not clutter your booth up with unrelated objects. Let honey shine in all its glory away from any distracting do-dads or gimmicks.

2. **Se'ect a theme for your display and stick to it.** It is far too easy (and far less effective) to plunk a few dozen jars of honey down on a counter and call it a display. But a display that has a message, or tells a story will draw more attention than the one that doesn't.

For instance, you might focus attention on the travel-route honey takes before it reaches the tables—from the flower to the bee to the hive to the extractor to the store to the table.

Or you might stress honey as it is used in cooking. Take one honey product, say honey taffy. Dress your booth up like a taffy pulling party, and give away individually wrapped pieces of honey taffy with each pound of honey sold.

Or let your whole booth be one big picture frame with an elaborate frame of paper flowers and have a theme such as this: Wherever flowers bloom, bees buzz, and honey, the great energy food, is produced.

3. **Elaborate on your theme with one catchy slogan.** Use this slogan on all your posters and display signs. Remember the power of repetition. Choose your slogan carefully, keep it short and snappy, then repeat it as often as you can.

4. **Flood your booth with color and light.** Effectively used, rich color and correct spot lights can beckon crowds to your booth.

5. **Employ movement if possible.** It is an undisputed fact that a moving object attracts more attention than a static one. Just a moving belt carrying jars of honey around and around your display booth would be better than a simple cluster of honey jars.

6. **Have your booth manned at all times.** People like to ask questions, and questions often lead to sales. Don't miss the opportunity!

Make doubly sure that the one who attends your booth knows the selling value of a warm smile and a cheery voice.

7. **Be on the lookout for special services you can perform.** Often at fairs people object to carrying a pail of honey around to the fair grounds, and thus don't buy any. This is a simple enough objection to overcome. Either mail the honey to them, or see that their order is waiting for them at the exit gate when they leave. It would be simple to rig up a system whereby a honey order would not need to be lugged around to other displays.

8. **Above all, if it's honey you are displaying, let the public see honey!** Not one jar, or two; not a specimen of each variety, but large, attractive, massed displays of it. Give the feeling of abundance and plenty of filling your booth with your golden product.

9. **Emphasize your own brand.** For of course, you are in the honey business to sell honey—your honey. But don't make the fatal mistake of taking a slight dig at anyone else's honey; that only casts a bad reflection on you and your product, and does you more harm than good.

10. **Be money-wise and sell Institute Old Favorite and New Favorite recipe books at your booth and the new Recipe Box.**

You can buy these books at cost from the American Honey Institute. And you can re-sell them at a slightly higher price to make a tidy profit. Place several copies on the counter for passing fair-goers to look at. Often these books have proved to be the arresting point that causes a woman to stop at your booth and gives you a chance to sell honey. Ask at the American Honey Institute, Commercial State Bank Building, Madison, Wis. for details.

Try out these ideas this year. You have nothing to lose, but everything to gain!

We Need More Theory in Beekeeping

By G. V. Palmrose, Beaverton, Oregon

In several articles published during recent years. C. H. Pease of Canaan, Connecticut, has attacked theory as applied to beekeeping. I believe such attack is unwarranted and that theory has a very useful function in beekeeping. Do not misunderstand me! I agree perfectly with Mr. Pease's views on knowledge, and recognize the desirability of facts as a basis for any course of action.

The difficulty stems from several possible definitions of the word theory, as can be readily seen by consulting Noah Webster. The lay use of the word means speculation or conjecture and this is undoubtedly what Mr. Pease has in mind. The scientific use of the word, which would seem desirable in beekeeping, is to designate a tentative principle or law of nature. A scientific theory is established by logical deductions from the available facts. The only speculation involved is whether the known facts are the pertinent facts. In the quotation attributed to Mark Twain, it is clear that he also recognized the scientific use of the word. We have only to change the wording slightly and we have....Theory, with facts to substantiate it, is like a man with bones —he looks like a man and he can stand up like a man.

In the scientific usage theory is not the opposite of fact. One must have facts to establish a theory. Now since it is manifestly impossible to know all the facts completely and since our knowledge can come to us only through our senses, which have their limitations, things which we believe to be true can actually be theoretical in some respects. Facts are truths and the only requirement for a truth is that it will bear repeated examination and impartial investigation.

The lay definition of theory is as opposite to the scientific definition as the scientific approach to the solution of a problem is different from the political approach. It has been said that a politician decides first what the answer is going to be, and then he looks about for facts to prove his case. In the scientific method, the facts are considered first so that the answer can be found from them. The political method is to appeal to the emotions, if facts are lacking; the scientific method is to rely on measurement and logic. The first method seems to come more naturally to most men, yet their progress in any field comes through the use of the scientific method.

I therefore wish to defend the use of scientific theories in beekeeping as well as other fields and wish to call attention to the Dzierzon theory as a case to the point. Today, no one seriously questions that a drone bee is produced from an unfertilized egg, yet when Dr. Dzierzon first announced his theory there was strenuous opposition and the idea was violently attacked as late as 1895. But the theory survived the tests and as more facts became known the evidence was rather conclusive. The result is a firmly established principle of beekeeping. It is really no longer a theory, it is the principle of parthenogenesis.

Another very recent illustration of the power of theory is the lack of brood viability discussed by William C. Roberts and Otto Mackensen, page 530, September 1951 issue of this magazine. I shall call this the Roberts and Mackensen theory. It states that a completely inbred queen mated to the same inbred line will lay eggs in worker cells but only 50 percent of the eggs will hatch. By simply examining the pattern of the capped worker brood it is possible to tell the extent of inbreeding of the queen. This is a theory that I think will be exceedingly useful to me and I would suggest to Mr. Pease that he too will find it very useful.

And so in beekeeping as well as other fields of endeavor there are plenty of examples of the great usefulness of theory. The late Dr. E. F. Phillips in his book "Beekeeping" 1928, page 2, says: "The good beekeeper is one whose interest does not limit itself to the so-called practical methods of management, a fact well expressed by the noted German bee-master, von Berlepsch, who said: 'Study theory or remain forever a bungler in practice'." You can rest assured that these experts were not referring to conjecture or guess work!

XUM

A 4-H Bee Enthusiast

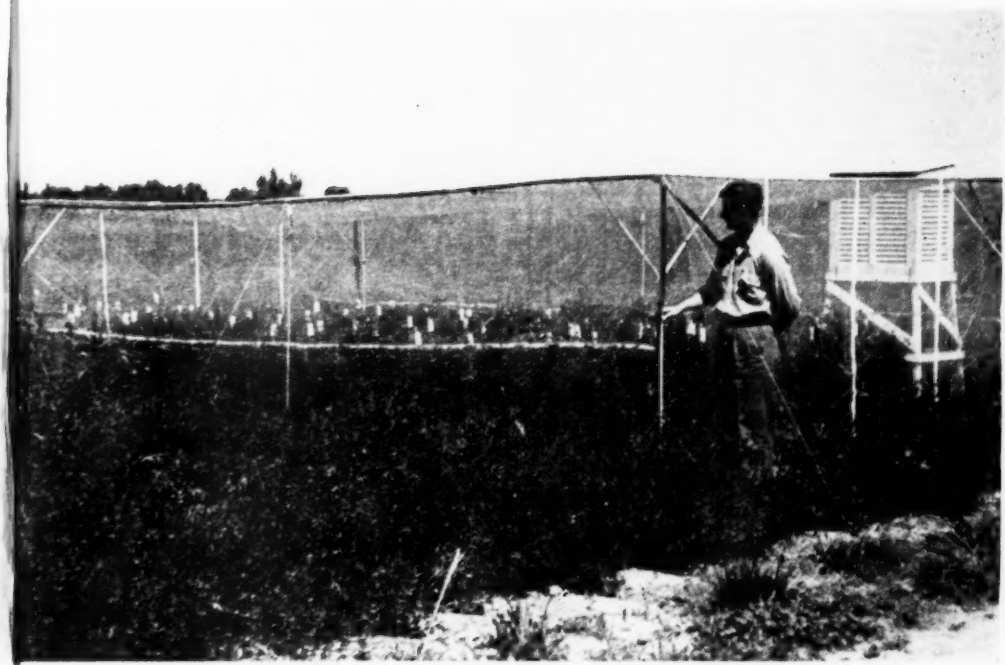
By Mrs. L. D. Campbell, West Nyack, N. Y.

Sylvia's father reads the directions for putting a hive together while Sylvia nails on the narrow metal strips which holds the frames.

If my thirteen year old daughter has as much fun caring for her bees as she had in getting ready for them, beekeeping is going to be a wonderful experience. Sylvia, who is now completing her fourth year as a 4-H Club member, had the full cooperation of her father in this venture. It is he who is helping her in the pictures. Then she does the work alone. He is standing by should she need help.

It takes both father and daughter to put the hive together, but they both get a lot of fun out of the operation.

Zippers on Bumblebee Cages Aid Alfalfa Breeders



Picture shows screen cage in use for isolating alfalfa clover. Operator has opened the zipper and is entering the cage. Note that the weather shelter shows clearly through the screen.—Photo from Authenticated News, New York, N. Y.

UTAH: Zippers for bumblebee cages are one of the new conveniences research agronomists and entomologists have used to improve pollination of experimental crops and speed up increase of seed for wider, quicker testing of new strains and varieties. In this work being done was the breeding of alfalfa by scientists of the Utah Agricultural experiment station. Small plots of alfalfa were inclosed with a framework covered with plastic screen fastened on for quick assembly, with zippers to keep in the colony of pollinizing bumblebees or other pollinizers. These experimenters were merely working on ways and means to hurry the research, to get more seed of their experimental alfalfa lines as soon as possible. They found the robust bumblebee is a vigorous pollinizer and produced a better yield of seed, highly important in the early stages of increase of experimental lots of plants. One of their colonies of bumblebees "tripped" practically all the alfalfa blossoms in one cage covered plantings. Honey bees also do a good job of tripping, but for these small size cage experiments a colony of honey bees is too big. A hive may have as many as 60,000. Bumblebees not only work vigorously but they come in handy size families, probably only 40 or 50. The bumblebees seemed to be quite at home and spent little time flying against the screen. They acted much as if they learned quickly in their short course of domestication to forget the pugnacity usually shown in the wild and devote themselves to the work of pollinizing. Workers and queens were perfectly docile while in the enclosure even when their colony was approached.

XUM

Asked & Answered

Brood Chambers and Removing Poor Combs

Question: About three weeks ago I caught a swarm from one of my four backyard bee hives. I did not have a deep hive ready at the time of swarming so I put the swarm into a shallow-super hive and the next day put another super on top of it. The bees are working good in these two supers evidently using the bottom super as a brooder hive. Would it be wise to put a deep body underneath these supers at this time so they would have more space for brooding or shall I let it go as is? My second problem is: I have had a double deep hive ever since I started with bees four years ago. A man sold it to me who started me with bees. The foundations in these two bodies are very old and I would like to replace them. (I never removed honey from either hive, just added enough supers every year for honey production.) When and how would be the best time to replace the old foundations?—Karl Huber, Md.

Answer: Regarding the swarm which now occupies a shallow and a deep super (the deep one being on top), it would do no harm to permit the bees to keep their present quarters as a brood chamber. We have tried having the shallow super underneath the deep one for brood rearing and it seems to work out quite well. The bees will use the combs in the deep super for brood rearing and when they become crowded the queen will go down into the combs of the shallow super and lay eggs. Even though the combs in your two-story deep-super hive are old, this should not make any difference in the production of brood so long as the combs consist mainly of worker cells and not drone cells. If the combs have large patches of drone cells, it would be well to replace them with frames containing full sheets of foundation. This can be easily done by removing undesirable combs and replacing them with frames of full sheets of foundation, putting the combs containing drone cells in the supers above the queen excluder. Frames containing full sheets of foundation should be put on during a honey flow. If they are put on during a dearth of nectar bees are likely to gnaw holes in the foundation.

Putting on Supers

Question: I want to know when to put on supers. Should I put them all on at one time or put one on at a time, and how should I arrange them?—K. P. Goodwin, N. C.

Answer: A fresh super should be put on when the one put on last is about half filled. The fresh super should be put on top of the pile. The bees will go up into this super when they need more room. Obviously, there must be a good honey flow on before the bees will work well in supers. Some beekeepers do put on all supers at one time and this seems to work during a good honey flow.

Removing Surplus Honey with Acid

Question: I would like to use acid boards to remove my supers. I read several years ago that it was not advisable for honey that was to be heated. Would you advise me on this?—C. L. Henbest, Ark.

Answer: We do not recommend the use of acid boards for removing surplus honey unless this work is properly done. There is danger of the honey becoming tainted with the acid flavor. Some commercial beekeepers claim they use acid boards successfully without damaging the flavor of the honey. In any event, the acid should not come in contact with the frames or the combs. The acid cloth in the cover above the supers of honey should be kept far enough away from the frames so there is no danger of it coming in contact with the tops of the frames. Acid boards should be used when the weather is quite hot in order to get good results. When it is cool and cloudy, these boards cannot be used satisfactorily. It is a fact that some honey packers have objected to honey removed with acid boards because the honey was said to have had an acid odor.

Proper Size of Brood Chamber

Question: I have a hive in which the queen hasn't any more room to lay in the ten combs and we have a light flow of honey coming in, and the bees are storing the honey in a shallow super above the hive body. Now if I place ten frames (deep super) between the hive body and the shallow super, will the bees draw out this foundation to give the queen room to lay? I haven't any drawn-out combs. Will the bees continue storing honey in the shallow super or will they store their honey in the new comb which I installed in the hive? Is a single-story 10-frame brood chamber large enough to hold the brood a good queen is capable of producing? —Gilbert Rider, La.

Answer: If the honey flow is sufficiently strong in your locality for bees to store surplus and to draw out full sheets of foundation, putting on a deep super containing frames with full sheets of foundation between your hive body and

the shallow super should result in the bees drawing out the foundation in order to give the queen additional comb space for laying. Later on, should you wish to use this new super as an extracting super for the storage of surplus honey, the queen can be driven down into the lower chamber by applying smoke, and the shallow super, which perhaps you are using as a food chamber, can be let down onto the bottom brood chamber. It is a fact that a standard 10-frame brood chamber, if all of the combs are good, will contain enough cells for a prolific queen to use in brood rearing. Assuming there are approximately 5000 worker cells on both sides of a standard comb, and that a queen usually occupies about 8 of the combs for laying eggs, this means that there are enough cells for 40,000 eggs. If a queen lays between 1500 and 2000 eggs per day, in 21 days she would lay about 40,000—enough to fill the 8 combs. At the end of 21 days, the bees in the center of the combs would be ready to emerge and this would make comb space available for the queen to begin another cycle of brood rearing. In calling attention to the number of cells available for a queen to lay in a single brood chamber standard hive, we are not advocating the single brood chamber because there needs to be comb space for the storage of pollen, also for extra honey needed by the bees at certain seasons of the year when nectar and pollen are not available. We use the double brood chamber, or what is called the food-chamber hive. When you use this hive you are likely to have very populous colonies of bees in the spring,—colonies that are sufficiently populous in bees to take full advantage of all honey flows that occur during the season.

When the Honey Flow Starts

Question: How do I know when the honey flow starts? In N. E. Texas we have every kind of flower blooming that can be thought of from April until October.—B. J. M., Texas.

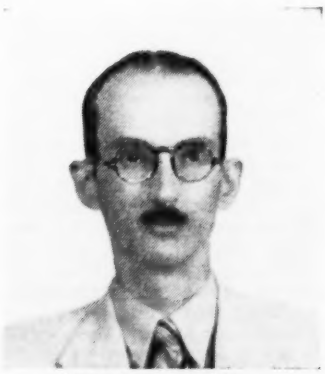
Answer: It is sometimes a little difficult to know exactly when the main honey flow starts. Occasionally, we are fooled because the bees may be flying quite heavily, making a big fuss, but not actually gathering much nectar. When you see bees hovering up and down at the hive entrances when they come from the field, they are light and do not have nectar in their sacs. If, however, they fly low as they approach the entrance and alight on the entrance board a few inches from the main entrance, then walk into the hive as though carrying a load, you may be assured that they are filled with nectar. If you can catch one of these loaded bees by the wings and hold it up to the sun, you will note that it looks larger than a bee that is empty. If you will press the honey sac gently with your thumb nail, a large gob of nectar will be regurgitated from the sac of the bee. If you want to be sure the liquid is nectar touch it with your tongue.

New Book on Honey Plants

The book **"Flora Apicola de la America Tropical"** (Bee Flora of Tropical America), by Gonzalo S. Ordetx, is the first and most complete work on bee flora of the tropics ever published. More than 700 species are discussed, covering the honey plants from Brazil to Mexico and subtropical United States.

This 336-page book handsomely illustrated will be of value to botanists, agronomists, and beekeepers of Mexico, Central and South America, as well as Texas and Florida where flora is similar.

It is written in Spanish, although vernacular names used in U. S. and British West Indies appear in English. The publication will be distributed by the Cuban Beekeepers' Association. Copies are $6.00 each postpaid from: Asociacion Apicola de Cuba, Correa No. 259 Viboro, Havana, Cuba.



Gonzalo S. Ordetx

Just News

More than a million visitors are expected to view the outstanding apiary display to be featured in the beautiful palace of agriculture at Los Angeles County Fair in Pomona Sept. 12 to 28. The attraction will be a part of the fair's silver jubilee anniversary. Under the able showmanship of George Adams, veteran California bee man, a splendid program of competitive exhibits has been arranged and listed in the premium book now being distributed. Substantial cash prizes will be awarded for the most original display of honey bees, and bee products by either an individual producer or a producer organization. There is also a full classification for all the well-known brands of comb and extracted honey and beeswax. Another classification covers a wide range of baked goods and candies made with honey. Entries for the competition close Sept. 9. Copies of the premium book can be had by addressing Los Angeles County Fair headquarters at Pomona, California.

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Plans for Pennsylvania Short Course Complete—Plans are now complete for the beekeeping short course at the Pennsylvania State College. The dates for the course are August 18 to 22 inclusive, with the 23rd the date of the State meeting which will also be held at the College this year. Programs for the course have been printed and copies are available for anyone who is interested and may wish to write for one so as to learn more about the details of the course. Space does not permit the printing of the program for the entire course. The three main speakers are E. J. Anderson, W. W. Clarke, and George Rea.

Those attending the course will have an opportunity to extract honey, make and graft queen cells, examine colonies of bees, observe A.F.B. as well as other bee diseases, and take part in other steps in apiary management. The practical phases of beekeeping are emphasized throughout the course so that both the beginner and the beekeeper with some experience will find his time well spent.

Quite a number of those attending the course have returned a second year since they wished to learn all that was possible and they felt that this was difficult for a beginner to accomplish during the one busy week of the short course. The good fellowship that prevails during the course also encourages those that attend to come a second time. Those wishing a copy of the program or wishing to register should write to A. L. Beam, Dairy Bldg., State College, Pennsylvania.

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The Lake Region Beekeepers' Association will meet at V. A. Sundberg and Sons apiary in Richville, Minnesota, on July 8, 1952, at 8:00 P. M.—L. W. Sundberg, Sec.

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The Minnesota-North Dakota Beekeepers' Associations will hold their annual summer meeting at Detroit Lakes, Minn. on July 25 and 26. A pot-luck picnic lunch will be served at noon on July 25. Bring your own dishes and silver and a hot dish, salad or sandwiches. There will be a smoker lighting contest in the afternoon of the 25th and a fun fest the evening of the 25th. Any and all beekeepers are urged to attend whether they are members or not.—Robert Banker, Sec.-Treas.

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The S. E. Minnesota Beekeepers' Association will hold its annual summer picnic on July 13 at Banker's Honey Market, six miles south of Cannon Falls on U. S. 52. A pot-luck picnic lunch will be served at 12:45. Coffee and ice cream will be furnished by the Association. Bring your own dishes and silver and a hot dish, salad or sandwiches. —Robert Banker, President.

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The Wisconsin State Beekeepers' Association summer meetings will be held at Walter Diehnelts' place, Menomonee, July 22, and at Eau Claire Lakes on July 23. A cordial invitation to all.

* * * * *

Summer Beekeeping Program, University of Massachusetts. Massachusetts beekeepers can look forward to an interesting and informative program on July 12 at the University of Massachusetts at Amherst. Featured speakers will include C. A. Jamieson who is in charge of research on beekeeping for the Dominion of Canada. It is expected that Mr. Jamieson will discuss recent work on the control

of bee diseases. A second speaker will be Roger Morse, Cornell University. Mr. Morse has made an exhaustive study on the use of honey in various beverages and will discuss this subject. Mr. J. R. Hepler, University of New Hampshire, will complete the list of speakers. Mr. Hepler will compare some of the old and new practices of beekeeping in this country. All people interested in bees are welcome. Ample time will be allowed for questions. It is hoped that beekeepers from other New England states will take advantage of this program.—F. R. Shaw.

* * * * *

The Westchester County Beekeepers' Association will hold its regular monthly meeting at 2:30 P.M., July 20, at the home of Mr. F. Burgmaier, 52 Willow Drive, New Rochelle, N. Y. Following the meeting our host's hives will be inspected. Refreshments will be served, and everyone is cordially invited to come.—Carlton E. Slater, Publicity.

* * * * *

The next meeting of the **Middlesex County Beekeepers' Association (Mass.)** is their third outdoor meeting to be held at the home apiaries of member William Maxant at Harvard, Mass. The club hive which was started at the last indoor meeting at Waltham, is to be inspected for progress. Mr. Maxant's hives are to be opened and inspected.—John H. Furber, Sec.-Treas.

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Michigan Beekeepers' Association summer meetings will be held at Frankenmuth Park on Thursday, July 24th, and at Bellaire Park on Friday, July 25th. Meetings begin at 10:00 A.M. Bring a picnic lunch. Coffee and ice cream will be served locally. These will be interesting meetings with short talks and identification of any honey plants that you wish to bring. All beekeepers and their friends are welcome.—E. C. Martin.

* * * * *

The annual Summer Meeting of the North Carolina State Beekeepers' Association will be held at the Western Carolina State Teachers' College, Cullowhee, N. C., on July 18 and 19. Arrangements are being made for an outdoor barbecue and for attendance at the famous Cherokee Indian drama "Unto These Hills". Rooms with linens furnished will be available at approximately $1.00 per day per person, and meals will be furnished at a nominal charge. Reservations should be made early as possible with W. A. Stephen, Extension Beekeeper, N. C. State College, Raleigh, N. C. Mr. Stephen is arranging an excellent program and several nationally known speakers are expected. Local arrangements will be made by P. J. Gibson, County Agent. Beekeepers and friends are urged to bring their families for a cool, relaxing mountain vacation.—Eugene B. Finch, Sec'y.

* * * * *

The **Logan County (Ohio) Beekeepers' Association** will hold a picnic and field day at the home of Mr. and Mrs. Albert Clagg, Bellefontaine, on July 13, at 1:00 P. M. —Mrs. Robert Wren, Sec.

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The Ohio State Beekeepers' Association summer meeting will be held in Jefferson, Ohio, August 5 and 6. A large attendance is anticipated. Details of the program will appear in the August Gleanings.

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Tazewell Beekeepers Association (Illinois) will meet on July 13, at the country place of Paul Bourscheidt in Mackinaw. Basket dinner at 1 o'clock. Directions will be sent in ample time.—Joseph Jachman, Secretary.

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Iowa, Nebraska, Minnesota, and South Dakota Summer Meeting at Sioux City, Iowa, July 12, 1952

9:00 - Registration and open house at Sioux Honey Association
10:00 - Leave for South Ravine Picnic Area - Henry W. Hansen, Dakota City Iowa
11:00 - Frame nailing contest for men, and women; smoker lighting contest for men, and women; spike nailing contest for women; three-legged race for children; wheelbarrow race for men
12:00 - Lunch (Pot Luck) Lemonade and coffee furnished by Sioux Honey Moderator-Ed Wolfe, Atlantic, Iowa
1:30 - Byrne Marcellus, Chicago, Illinois Advertisement
2:00 - Harold Clay, Washington, D. C. Price Support
2:30 - James Hamilton, Los Angeles, Cal. Pollination
3:00 - G. H. Cale, Hamilton, Illinois Need of Organization Tug of war

Four-State Meeting Postville, Iowa - July 15, 1952 Big-4 Fair Grounds

9:00 - Registration
10:00 - Games and Contests - Henry W. Hansen, M. C. Frame nailing (men and women) - bring your hammer; smoker light-

(Continued on page 444)

Olaus Magnus

By H. Malcolm Fraser, Northwood, Middlesex, England

Olaus Magnus was a Swedish prelate, born at Lindkoping about the end of the 15th century. He was the Provost of the Church at Stregnes when Gustavus 1st sent him to Rome to obtain the Papal confirmation of the nomination of Gustavus' brother John to the Archbishopric of Upsala.

Actually the pope nominated him Archbishop of Upsala in 1644, but, as the Reformation then took place in Sweden, he never left Rome, where he died in 1568. He wrote two books. "A History of the Gothic Nations", published in Rome in 1554 and "The History of the Northern Nations", from which these extracts are taken. This was published in Rome in 1555.

CAP. XV

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Water being poured over hives at the beginning of September.

CAP. I

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Skeps being taken to the heather.

More on Hive Colors

O. B. Johnson, Chemical Engineer, Houston, Texas

It would seem very logical indeed to use red paint (and may I say here that a gloss finish regardless of color will be cooler than a flat finish by virtue of its high reflective ability) where a beekeeper wishes to add a bit of brighter air to an otherwise drab appearance of solid unbroken lines of white. I have often thought of doing something of this nature since beekeeping has been a hobby on a backlot scale for many years. The hobbyist can afford to tinker if he prefers, whereas the commercial man is obliged to stick more to the proven methods for sheer bread and butter. The controversy of colors in my mind has always been between white and silver or aluminum finishes rather than some rainbow color. While it is true most of the heat radiation from the sun is contained in the red and infra-red end of the spectrum, there is still energy reradiated from an object exposed to the sun's rays

which are a direct result of absorption from the shorter wave lengths, i. e., blue, green, etc., and radiated in the form of heat. The conclusions I am trying to establish are that the color red reflects a greater portion of heat than the others but simultaneously don't forget that white not only reflects the red rays but all other wave lengths within the visible portion of the sun's spectrum as well.

Your editorial on red prompted the following experiment which is so easy any one wishing to find out for himself can do so very cheaply. It consists of a Caroll mercury thermometer inserted in the center of a cardboard disc slightly larger than the containers used. A set of spun aluminum tumblers having most colors (but not all) were used primarily because the heat resistance of a layer of paint did not have to be considered. These finishes are all metallic and are within the surface of the metal conductor. The experiment consisted of two parts, but I will submit only the most positive. Incidentally, I have carried out two more similar tests with only slight variations from the chart below. The thermometer was inserted within the inverted tumbler and measured the confined aggregated heat after precisely five minutes of exposure on the part of each color. Since this time is normally too short it is exhibited on a **relative** merit only. The entire experiment is on a relative basis and should be considered as such.

The only apparent fallacy of the experiment is the slight puffs of wind as noted plus the fact that the cardboard was not a hermetic seal.

COLOR	T1	T2	T3	T4	TIME CST AM
Maroon	2.5	61	40	21	9:10 - 9:15
Aluminum	0	59	40.5	18.5	9:15 - 9:20
Blue	3.5	63	41	22	9:20 - 9:25 Winds variable
Green	7	67	41.5	25.5	9:25 - 9:30 and slight esti-
Gold	3.5	64	42	22	9:30 - 9:35 mated at 0 to
Chartreuse	2.5	63.5	42.5	21	9:35 - 9:40 2 MPH.
Brown	6	67.5	43	24.5	9:40 - 9:45

T1 Actual degrees (F) above aluminum based as zero (coolest)
T2 Temperature within tumbler
T3 Ambient air temperature
T4 Temperature difference between outside and contained air

BEES AS A HOBBY

(Continued from page 402)

wealth and beneficence of nature, and he resolves to assist her in providing more and more bee pastures.

Swarming, according to the book, will occur whenever the hive is overcrowded or whenever a new queen appears in the hive. A good indication that they are preparing to swarm is feverish excitement of the workers and the clustering of a large number of bees on the front of the hive, while field bees from other hives are going and coming in a steady stream. This, however, is not always a sure sign. Perhaps the presence in the hive of a new queen is a greater cause of swarming than congestion within the hive. Our hobbiest must be on the lookout for such signs, and, if possible, forestall their departure.

Honey will be stored in great quantities during the warm days of spring and early summer, providing weather conditions are favorable. The bees will explore the fields and meadows and penetrate into the wilds, searching for nectar. Many will die of exhaustion, but younger bees will take their places, for is not this their joyous harvest time? Everyone takes part but the drones, but when winter comes they will all be killed off.

Summer is coming to a close, and our hobbiest is rather curious to know if there is any surplus honey for his consumption. He, however, dislikes the term "robbing the bees", for have they not labored hard and long to accumulate sufficient stores for the coming winter? He knows that if the brood chamber is heavy, it is probably full of honey. Even so, should the winter be cold, they will require more food to keep them warm, and brood rearing in the spring will be an added tax on their honey supply. Upon investigation, he finds that he can remove about 75 pounds without weakening the colonies, which is more than he expected. This first year with the bees confirms his decision that bees are an interesting, profitable hobby.

Treating Bee Stings

By Claire Halliday, Montreal, Quebec

The writer is medical copywriter for a firm of pharmaceutical chemists and publishes free-lance medical articles in Your Health; Hospital Management; Saturday Night; Canadian Pharmaceutical Journal; Canadian Nurse; Red Cross Junior, etc.

The usual treatment for bee stings suffered in my childhood was a wet alkali daubed on liberally—solutions of washing soda, household ammonia, or cold compresses of Cow brand baking soda. More recently, injections of stimulants are given if symptoms are severe.

The symptoms of stings from bees, wasps, and ants range from discomfort to deep shock, and, rarely, death. Within this range of reactions the victim may suffer local pain from mild to extreme, hives, weakness, numbness, headache, convulsions, cramps, shortage of breath, and even paralysis.

At one time, doctors thought that these effects were produced by the poisonous nature of the bee venom. The female of the honey bee (more deadly by far than the male) has two types of venom glands in the last segment of her abdomen. One gland produces acid and the other an alkali, which mix before being ejected into the victim through a hollow barbed lancet.

The venom from 12,000 bees was once examined by a Dr. Langer. Formic acid was considered at that time (and since) to be the principal factor in bee venom that causes pain. However, it is present only in minute amounts and serves merely as a preservative. A drop is left by the worker bee in the honey cell before it is sealed.

Recent experiments have shown that the pain and other reactions to insect stings are probably allergic in nature because (a) bee venom is a protein and could provoke an allergic reaction in a hypersensitive person, and (b) the symptoms resemble those that occur in allergic individuals when histamine is released into the blood stream from any number of causes. These symptoms may be diarrhea, pain, swelling, sneezing, hives, asthma, and many others.

Histamine is a chemical normally present in all the tissue cells of the body; when the cells are injured, this substance suddenly goes berserk. Now, our tissues can be injured by contact with some factor that is "foreign" to the individual—pollen, poison ivy, a food, drug, or bee venom to which the person is allergic.

With this information in mind, an American doctor decided to treat bee and other stings with an anti-histamine ointment. This drug counteracts the action of the histamine. He treated eight patients including a five-year-old boy who was screaming with pain from seven stings around his ankles. The ointment was massaged gently into the flesh to help spread it throughout the tissues.

Within a minute, the child stopped crying, saying that the pain had seemed to "melt away". No swelling developed, or other after-effects. Later, the little boy again fell foul of a bee, which stung him on the thigh. This also responded at once when the ointment was used. Since then, the doctor has used it successfully in many patients to relieve the stings of ants, hornets, wasps, and mosquitoes.

There are many brands of these anti-histamine ointments on the druggists' shelves, as well as many lotions containing anti-histamine substances. A tube or bottle makes a valuable addition to the first aid kit, the picnic basket, or the lunch box that goes to the field or orchard. (See page 408.)

More About Opossums

By J. R. N. Warher, Alma, Ga.

Referring to page 364, June issue, skunks scratch the hives to make the bees come out so they can eat them. Opossums chew the dead bees and suck the honey out of them. If a colony does not carry the dead bees out during the winter, but just drops them off the front of the hive, the opossum will find them and leave his signs. When he gets all the honey out of the bees he spits them out and you will see a wad about as large as the end of your thumb, the bees all mashed up. That is the opossum. The skunk swallows the live bees.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

ANY GRADE—Any amount. Alexander Co., 819 Reynolds, Toledo, Ohio.

IOWA Honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

ORANGE, Palmetto, and Mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 1.

Honey, white clover, 17c per lb. in single cans, 16c in lots of 5 cans or more. Lose Brothers, 206 E. Jefferson, Louisville, Ky.

STOLLER'S fancy clover honey in new sixties. Stoller Honey Farms, Latty, Ohio.

Michigan's finest raspberry, basswood, clover comb honey, in 4 x 5 window cartoned sections. Fancy, $6.00; No. 1, $5.00; No. 2, $4.00; case. E. Z. Quick Way B Farms, Walloon Lake, Michigan.

NEW CROP section comb honey ready for immediate shipment. Millard Coggshall, Groton, N. Y.

TUPELO HONEY — Ten-pound pails, $2.10, express charges collect. Marks Honey Co., Apalachicola, Florida.

NORTHERN NEW YORK'S finest white clover comb honey. Forrest Dygert, Hammond, N. Y.

CLOVER COMB HONEY—Ready to ship about July 15. Write for prices. C. W. Schrader, Waterville, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on COD terms except where the buyer has thoroughly established his credit with the seller.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & Company, 1360 Produce St., Los Angeles 21, California.

HONEY WANTED, any amount. If you want more for your honey, sell it to Cloverdale Honey Co., Fredonia, N. Y.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

BEFORE YOU SELL your clover honey contact us. Send samples and tell us how much you have. The Delaware White Clover Apiaries, 139 West William St., Delaware, Ohio.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Paducah, Kentucky.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED three carloads of buckwheat honey, two carloads of Florida orange blossom honey in barrels or cans, two carloads of southwestern alfalfa or cotton honey. Cash and top prices. Alexander Company, 819 Reynolds Road, Toledo, O.

WANTED—Light amber clover, amber, goldenrod, buckwheat. Advise what you have for immediate delivery. Roscoe F. Wixson, Dundee, N. Y.

CUT COMB. CHUNK, clover preferred, truck lots or less. Cash on delivery. Lose Brothers Inc. 204-206 E. Jefferson, Louisville, Ky.

WANTED TO BUY—comb honey, No.1 white only. J. P. Kallas, 5737 No. Milwaukee, River Parkway, Milwaukee 9, Wis.

FOR SALE

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Mich.

The only comb foundation plant in the east. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

BEE SUPPLIES. Catalog free. Hodgson Bee Supplies Ltd., 575 13th Ave., New Westminster, B. C., Canada.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Michigan Headquarters for
Root QUALITY
Bee Supplies
Complete Line of Bee Supplies and Honey Containers
Prompt Service
Michigan Bee and Farm Supply
510 N. Cedar St.
Box 7 Lansing, Michigan

G. B. Lewis Wooden Goods!
Dadant's World Famous Crimp Wired Foundation. — Their 85 years' experience is your safeguard. Catalogue on request.
Dotson's Apiaries
3059 W. Roxboro Rd., NE
ATLANTA, GEORGIA

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

BEE SUPPLIES—Tin packages; 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., PADUCAH, KENTUCKY.

QUEENBEE PAINTING OUTFIT, $1.50; colony records 10, 15c postpaid. Southwick Apiaries, Waban, Mass.

GET THEM while you can. New or used cans and Root Supplies for cash or honey of any kind. L. E. Hicks, 3930 N. High St., Columbus 14, Ohio.

FOR CHRYSLER ALL-STEEL electric welded queen excluders in the U. S. A., write to: Prairie View Honey Co., 12303 12th Street, Detroit 6, Michigan. Ask for Circular E 2.

EXTRACTING SUPERS — 10-frame, drawn comb, like new. Many other items. Paul La Plant, 235 E. Main St., Anoka, Minn. Phone 400.

Stray swarms decoyed into tree boxes. Methods from 40 year's bee trapping experience. Illustrated bulletin, $1.00. Jess Kovanda, Ord, Nebraska.

FOR SALE — 1 10-plate honey filter, complete with sump pump; 1 Senior size Brand Capping Melter, stainless steel tank; 1 Merry-Go-Round — All three used one season. 1 2-frame Root extractor, large pockets; 1 90-gallon tank; 1 45-gallon tank; 1 electric uncapping knife; 1 uncapping tank, 20 inches wide by 2 ft. deep by 9 ft. long, with 5 sliding frame racks. Box 752, Gleanings in Bee Culture, Medina, O.

50 colonies bees. Highest bidder takes them. John Hallbauer, Wales Center, N.Y.

FOR SALE—35 colonies of bees. Leo Cushman, Plymouth, N. Y.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold, or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CAUCASIAN queens, young laying. Personally raised, $1.00 each. Fred Brock, McDonald, Tenn.

GREEN'S PROFIT PRODUCING Italian queens will please you. My 25 years' experience is your safe guard. If you want a better hive of bees, get a better queen. Start shipping about March first. Price, 90c each. After June first, 50c each. Cash before shipping dates. D. P. Green, De Land, Fla., R. 2, Phone 512M.

Will fill your cages with certified Italians. 50 pound after May 15th. Write for other package prices. A. V. Dowling, Valdosta, Georgia.

THREE BANDED ITALIAN bees and queens. Good workers and gentle. 2-lb., with queen, $3.00; 3-lb. with queen, $4.00. Select untested queens, 1 to 25, $1.00; 25 to 100, 90c; 100 up, 80c. Write for prices on larger orders. Satisfaction guaranteed. Alamance Bee Company, Geo. E. Curtis, Mgr., Phone 4703, Graham, N. C.

GOLDEN ITALIAN BEES AND QUEENS. Very yellow and gentle. 2-lb. with queen, $3.00; 3-lb. with queen, $4.00; Select untested queens, 1 to 25, $1.00; 25 to 100, 90c; 100 up, 80c each. Carolina Bee Farm, W. O. Curtis, Phone 7731, Graham, N. C.

CAUCASIAN BEES AND QUEENS. Extra good workers and very gentle, 2-lb. with queen, $3.00; 3-lb. with queen, $4.00, Untested queens, 1 to 25, $1.00, 25-100, 90c, 100 up, 80c. Black River Apiaries, Elliott Curtis, Mgr., Currie, N. C.

NORTHLAND ITALIAN QUEENS—For production. $1.00 each; 10 up, 90c. Shirl Baker, Rodney, Michigan.

CAUCASIAN QUEENS, 75 cents each, any number. Lewis & Tillery Bee Co., Greenville, Ala.

YANCEY HUSTLER QUEENS — Three-band Italians; bred for business, $1.00 each; $10.00 per dozen. All guaranteed. Caney Valley Apiaries, 2500 Nicholas, Bay City, Texas.

SHORT'S QUEENS ARE GOOD QUEENS. Try them and you will find their colonies tops in production, gentleness, and freedom from diseases. Three-banded Italians only. Used by leading honey producers for more than 30 years. Requeen now for maximum production next year. $1.00 each; 10, $9.00; 25, $20.00. Prompt shipment. Postpaid. H. C. Short, Fitzpatrick, Ala.

YELLOW Italians, real honey producers, service guaranteed. 2-lbs. with queen, $4.50; queens, 80c; 50 up, 75c, air mail. O. E. Brown, Route 1, Asheboro, N. C.

EXTRACTORS FOR SALE

EXTRACTOR. Root, 2-frame reversible. Good as new. $25.00 f.o.b. New Burnside, Illinois. Earl Keel.

USED WOODMAN 30-frame extractor, in good condition. Alvin Maxwell, Snover, Michigan.

FOR SALE — Root 45-frame extractor and Root power uncapping machine, with motor. Both in good condition. Will sell reasonable. Elton D. Shaver, Dexter, N. Y.

At a bargain: ROOT 45-Frame EXTRACTOR, almost new. Two large tanks. W. A. Coulter, 972 Cleveland Ave., Columbus, Ohio.

HELP WANTED

WANTED to hear from a young Farm Catholic couple to help in bee business and take over large productive farm on easy payment, in northern Ohio. Box 652, Gleanings, Medina, Ohio.

Applications wanted for year around work in commercial beekeeping. Give experience, age, and salary details in first letter. York Bee Company, Jesup, Ga.

ONE MORE MAN in bee business or strong boy during school vacation. Excellent wages to good help. M. E. Ballard, Roxbury, N. Y.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

MAGAZINES

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years,

60-LB CANS

Several
Thousand
Used Cans
Just Like New

Also

Brand New Cans
With Large
Size Openings
Packed in Cartons
of 24 or
in Bulk Truckloads
or Carloads

HONEY LABELS

HONEY JARS IN ALL SIZES

5-lb. Pails

10-lb. Pails

CORRUGATED SHIPPING CASES
Please write for prices.

C. W. Aeppler Co.

Drawer 239
Oconomowoc, Wisconsin

Hollopeter's Queens

Reared in the North from Northern stock full of vim, vigor, and vitality. This strain of Italians has stood the test for over 40 years with beekeepers everywhere and will please you.

— Prices —

Untested Queens

1 -9	$1.00 ea.
10 -24	.90 ea.
25 -49	.80 ea.
50 -99	.75 ea.
100-up	.70 ea.

WHITE PINE BEE FARMS
Rockton, Penna.

NORTHERN QUEENS

Pure leather colored acclimated Italian stock; shipping starts in May.

"They're Winterized"

Untested $1.00
Select tested 2.00
Clipped, Air Mailed, Painted

BARGER APIARIES, Carey, O.

Selected Italian Queens 75c ea.
All queens shipped Air Mail and guaranteed to please.
Carniolans ..... $1.00 ea.
Caucasian queens . .90 ea.

Walter D. Leverette Apiaries

Box 364 Fort Pierce, Florida

Healthy Italian Bees Queens
Write for 1952 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

$2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

THE BEE WORLD, international and scientific journal on bees and beekeeping, with apiculture abstracts. Monthly, including membership in the Bee Research Association, $3.00 per annum, including apicultural abstracts. Dr. Eva Crane, Director, 55 Newland Park, Hull, Yorks, Eng.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh, Dist. Naini Tal, U. P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy, Rs ¼s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $1.00. Hotel Cactus, San Angelo, Texas.

QUEENS

The Package Season is about over for this year. We have lots of Good Queens ready for immediate delivery.

ITALIANS CAUCASIANS
ITALIAN HYBRIDS

- Prices -

1-24	$ .75
25-99	.70
100-499	.65

Tested Queens, ea. 1.50
Postpaid, Airmailed and/or Clipped-No Extra Cost

The Stover Apiaries

Mayhew, Miss.

HARDY NORTHERN YANKEE QUEENS
Only Tested Queens $1.00
R. L. LIVERMORE APIARIES
BELLE CENTER, OHIO

BEE LINES TO THE EDITOR

(Continued from page 388)

I do, that the Government is not some entity of incalculable wealth and inexhaustible resources, it is WE; and if the powers that be hand you out a dollar, then you and I have to chip in. So, in the last analysis, the bee man isn't getting something for nothing—he's paying himself his own price increase.

"Two laws never have been—never will be—successfully repealed: the Law of Mathematics and the Law of Supply and Demand. Canute the Dane commanded the tide on Britain's shore to recede. It didn't. Nor can any amount of legislation stay the flow of inflation or check the ebb of deflation.

"I am not an economist, but I firmly believe that the best thing that could happen economically would be for the government to remove practically all controls, rents, wages, prices, credits, and let the law of compensation work, and offer no 'supports' to any interest or segment of our society. I do not deny that there might be a difficult period of adjustment, but in the long run there would result a stabilization that would insure for the beekeeper, the farmer, the manufacturer, the merchant, the highest prices consistent with reasonable competition and legitimate or normal demand.

"It's high time for the government—federal and state—to take its hands out of private business. The time to avert national socialism is NOW.

"Let's get back to liberty under law—Constitutional law. Stealing steel mills—and beehives!—isn't the solution."—P. W. E.

* * * * *

"I note in your 'Asked and Answered' column that a Mr. Leonard Short of Ohio says that he plans to start a bee rental business on Cape Cod, since he believes that no such business exists here. My back and I can attest to his error, for my neighbor, Donald Reid rents 150 hives every year on the Cape. I know, for I have helped him move them onto cranberry and blueberry locations. Also there are at least two other beekeepers who bring bees from a distance of 50 miles or more to the Cape for rental. It is not my objective to deter Mr. Short—far from it. I have but five colo-

(Continued on page 445)

GOOD QUEENS

Italian or Caucasian

Customer: If you want queens that will pay off in the future and produce bees that a man can handle with pleasure, send your requirements to me, for I have them. 75c ea.

Farris Homan

Shannon, Miss.

AND NOW AGAIN

We are accepting orders for shipment beginning on or about June 15, for our HARDY NORTHERN BRED leather colored Queens. $1.25 ea. Discount on large orders.

The Delaware White Clover Apiaries
139 W. William St., Delaware, Ohio

1876 1952

Our 1952 crop of Michigan clover honey should be ready for the market in July. Dealer: if you want clover honey of the best quality, get on our mailing list, and we will keep you advised on crop conditions, and prices for the coming season. **Address E. D. Townsend & Sons, Northstar, Michigan. The BEST known name in HONEY PRODUCTION.**

DISEASE PROOF BEEKEEPING
By
THE WORLD'S BEST BEEKEEPERS
NATURE AND EVANS

Normal Nature has disease-free bees, perfect wintering, otherwise there would be no bees today. The Evans BEE-RITE, "At the Top", universal method, being exact nature, keeps bees disease-free, provides perfect wintering, year after year, with no attention ever. All beekeepers, the world over, can do the same, with one top bee entrance, ventilating cover (patented) and 10 natural bee nest frames (patent pending). With full instructions, $6.00, F.O.B.
EVANS BEE-RITE PRODUCTS
R. F. D., Portville, N. Y.

BRITISH BEE JOURNAL
The Only WEEKLY Bee Journal in the World
Subscription $3.00 per annum payable in advance.
Keep up to Date in Beekeeping by taking out a subscription now through our agents:
Gleanings in Bee Culture
Medina, Ohio

Peace is for the strong . . .
Buy U. S. Defense Bonds regularly!

To Whom It May Concern:

Effective January 1, 1952, the partnership of ROSSMAN & LONG was dissolved with J. G. (Joe) ROSSMAN buying the interest of E. W. (Emerson) LONG of St. Paris, Ohio.

J. G. ROSSMAN will continue to manage the Package and Queen business in Georgia.

There will be NO change in PERSONNEL or POLICY in dealing with the public.

Both Emerson and Joe feel this arrangement is better, and they terminate their very pleasant relations as partners with best wishes each for the other.

Queens available all fall.
Regular or Kelley Island
3-way Hybrid
1-25, 85c 26 or more, 75c ea.

— Please —
No more packages this year.
"They Produce"

ROSSMAN APIARIES
Formerly ROSSMAN & LONG
Box 133 Moultrie, Ga.

KOEHNEN'S
Package Bees and Queens
For Quality and Service
KOEHNEN'S APIARIES
GLENN, CALIFORNIA

LADY LIKE CAUCASIAN bees in our testing apiaries in a North Central State more than doubled that state's average per colony honey crop in 1951. Our breeding queens for this season were selected for diease resistance, honey production, and gentleness. Their daughters will produce for you if properly handled.

Select untested queens $1.10

Queens clipped and marked free on request. Please print name and address.

Caucasian Apiaries
Castleberry, Ala.

INCREASING HONEY PLANT ACREAGE

(Continued from page 403)

family, be included. They all have a use and may very well be more suited to some locations than the commonly planted conifers.

The question beekeepers most commonly ask today when the subject of honey plants comes up, is: "With the present low price of honey, does it pay to try to increase our nectar resources?" I sincerely believe that it does for the following reasons:

First, few locations are so good but what they would benefit from an increase in the variety of honey plants available. Consider a new honey plant a success if in time it helps to keep colonies in good condition.

Second, old favorites, like sweet clover, have ways of getting bugs or disease and disappearing. It is well enough to have several prospects coming along to replace whatever furnishes your main flow at present.

Third, present low prices do not necessarily represent a true picture of the industry. It has its ups and downs but even at its worst it is more pleasant to know that the bees are busy on some worthwhile source.

Fourth, a lively interest in honey plants makes a nice hobby for the average beekeeper, a pleasing diversification from the problems of the day.

ITALIANS
Bees and Queens

2-lb. pkg. each	$2.50
3-lb. pkg. each	3.50
4-lb. pkg. each	4.20

Nice large queens
1-99 ..... 55c 100-up 50c
All queens are honeys for producing honey.

MITCHELL'S APIARIES
Box 391 Bunkie, La.

If you are taking time to read, why not read the best? Condensed to save you time. Illustrated to give you pleasure.

Modern Beekeeping
The Picture Bee Magazine
Box 210 Paducah, Kentucky

Peace is for the strong . . .
Buy U. S. Defense Bonds regularly!

MECHANICS OF POLLINATION AND FERTILIZATION

(Continued from page 395)

sticks to the stigma by means of a sticky, sugarlike substance that starts the grain to germinate. The grain germinates by sending out a long pollen tube which works its way down the style to the ovary. Inside of the ovary are a number of structures called ovules, each of which contains an egg cell that will develop into a seed upon fertilization. The egg nucleus is one of three nuclei located at each end of the embryo sac. The other two located in the center of the egg cell are called polar bodies which unite to form an endosperm nucleus. The egg nucleus is the center nucleus at the lower end of the embryo sac. (See diagram.)

Each pollen grain has a nucleus which divides upon germination into a so-called tube nucleus which enters the pollen tube first, and a generative nucleus which soon follows into the tube. Upon entering the ovary the pollen tube seeks an opening in the ovule called the micropyle where it enters. The end of the tube then dissolves to allow the sperms (nuclei from the pollen tube) to enter the embryo sac. One of the sperms unites with the egg nucleus, and the other with the endosperm nucleus. The union of the egg and sperm produces a fertilized egg which gives rise to the embryo or young plant. From this small beginning all plants on the surface of the earth arise. Plants are the foundation of all life—thanks to the free pollinating services of the honey bee.

We are beginning to realize that our National Welfare is hooked up very closely with our supply of honey bees because they alone, with the exception of the rapidly diminishing wild bees, are largely responsible for the natural "chain reaction" which results in more seed, more fruit, more forage crops, consequently more meat, and ultimately lower prices and a healthier nation.

THRIFTY QUEENS

Three-banded Italians only

Lots of 100 ..... $55.00
Smaller lots, each ..... .65

REMEMBER — Thrifty Bees are Guaranteed to Please

W. J. Forehand & Sons
Fort Deposit, Ala.
Breeders Since 1892

Summer Prices
ON
PACKAGE BEES AND QUEENS

2-lb. pkgs. with queens, wt. 7-lbs., $2.00 any number

3-lb. pkgs. with queens, wt. 9-lbs., $2.50 any number

Untested queens, D.R. stock, 50c any number

Tested queens, D.R. stock, $1.00 any number

If bees are wanted by mail your Postmaster can tell you the amount to send, or write us. Queens delivered or clipped at above prices.

Merrill Bee Company
Box 115 State Line, Miss.

Queens
75c each Air Mail
J. F. McVAY
Jackson, Ala.

HOWARD WEAVER'S

Caucasian Queens at the following prices:

1 - 24 ..... $1.10
25 - 49 ..... 1.00
50 - up ..... .90

No package bees.

Howard Weaver
Navasota, Texas

QUEENS

By return mail 60c
2-lb. package with queen $2.75
3-lb. package with queen 3.50
Tested queens 1.00

BRIGHT 3-BAND ITALIAN NOW READY

Guaranteed in every respect.

NORMAN BROS. APIARIES
Ramer, Ala.

DADANT STARLINES QUEENS SUNKIST ITALIANS

DADANT STARLINES — the production-minded bee with disease resistance built into them. Easy to work with. They recommend themselves.
SUNKIST light-colored Italians — a favorite for years. High producers and gentle.

Starlines		2-lb. w/q	3-lb. w/q	Italians	
1 -25	$1.30	$2.60	$3.50	1 -25	75c
25-100	1.20	Pkgs. with Starline		25-50	70c
		queens, add 40c each		50-up	65c

Queens clipped, airmailed and painted on request.

SUNKIST BEE COMPANY CONVENT, LA.

CAUCASIANS CARNIOLANS

Hardy, prolific, rapid build-up best of workers. Caucasians have the longest tongue of any race. Both races build beautiful white combs. BOTH ARE THE GENTLEST OF ALL RACES OF BEES. Gentleness is safest in towns, near neighbors, or near streets or highways. Gentleness saves time, sweat, patience, and work. Discount on quantity orders. A few Caucasian Breeding Queens. Ask.

Prices, Both Races:
Untested Queens .....$1.00 each
Tested Queens ..... 1.75 each
By Air Mail

Albert G. Hann
Glen Gardner, New Jersey

Package Bees
and
Queens
Write for Prices.

JACKSON APIARIES
Box 58, Funston, Ga. U.S.A.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations, and plant possibilities.

1 year, $2.00, U. S. and Canada
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only $1.75 per year.

LIVE AND LEARN

(Continued from page 410)

"Yard 2" bees bring in what my "Yard 1" bees can't locate.

There are surprises here, too. Last winter I took a walk across the fields opposite here. I do that often, but this time when I came to the salt marsh about a half mile away, the tide was out and big floes of ice were stranded so that I could walk out quite a long way. Behold, I found a slight rise of ground, maybe ten acres in area, just covered with huckleberry. Now I think I know the reason for the spurt my bees put on just before apple blooms. Too bad they have other things to do with the nectar.

JUST NEWS

(Continued from page 433)

ing (men and women) - bring your fuel; spike nailing contest for women; wheelbarrow race for men; three-legged race for children
11:00 - Cooking Exhibit - prizes; seed exhibit, featuring legume seeds
12:00 - Pot Luck Lunch
Irving T. Hartung, Chairman
1:30 - Producing Queens - J. W. Newton, Baton Rouge, Louisiana
2.00 - This Beekeeping Business - Henry Schaefer, Osseo, Wisconsin
2:30 - Looking Ahead - F. B. Paddock, Ames, Iowa

The Virginia State Beekeepers' Association will meet for their summer picnic in Miller Park, Lynchburg, Va., on Aug. 6.—J. M. Amos.

Our Cover Picture

The photo on our cover was sent to us by Randolph P. Compton, of New York City. The picture was taken on the golf course of the Pine Needles Golf Club, of Southern Pines, North Carolina.

BEE LINES TO THE EDITOR

(Continued from page 441)

nies myself, and plan a maximum of 20, and I do not intend to enter the rental field. Undoubtedly the rental market on cranberries is far from saturated, but that would be about the size of it—in other words, there isn't much else that would require pollination service that isn't already taken care of. That would mean bringing the bees here for a single rental. The prevailing price is around $5.00 to $6.00 per hive.

"Probably the reason that Mr. Short has gotten the idea that this is 'virgin territory' is that he has not happened to see many bees. That, however, does not mean that they are not there. We make it a practice to conceal them, for my good friend Don has had some sad experienecs with pilfering and vandalism on exposed hives.

"As I say, it may be that there is still enough unsatisfied demand for pollination service to make Mr. Short's venture successful, and I wish him luck, but I urge him to contact prospective customers and actually determine the demand before he attempts to bring bees from a distance of any greater than 50 miles, or makes a large investment to establish colonies in this area." —R. H. R.

* * * * *

"The June, 1952, issue of Gleanings contained a write-up by J.B.H. wherein he suggested the possibility of breeding from colonies where mother and daughter queens are found living for some time in the same colony.

"It has been my observation that in the majority of cases where two queens are found working in harmony for a good length of time that both queens are of inferior quality. Last fall as I was preparing my bees for winter I found a colony where mother and daughter were on the same comb. This colony had not been a good producer during last season. However, it was late in the season and no queens were available at the time for requeening. They were packed for winter, with notation made on cover that two queens were present. This spring when they were unpacked the two queens were still present. Neither was performing a good job of egg laying, and needless to say, they were both killed and a new queen introduced. To rear another queen from such parents would soon ruin a bee yard. I have noted similar conditions at different times and from my experience I believe both queens are inferior if the young queen permits the mother queen to exist for a long period of time. I do not have reference to the usual procedure where the mother queen is found in the hive for a short period after the young queen becomes mated and starts taking over the duties of egg laying, as this is quite normal."—E. F. B.

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